Implementing ERPII in customer facing organisations, an investigation of critical success factors

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Implementing ERPII in customer facing organisations, an investigation of critical success factors

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DECLARATION

I confirm that no part of the material contained in the thesis has previously been submitted for a degree in this or any other institution. This research has been independently conducted by the author. All sources of material from the work of others has been acknowledged and appropriately referenced.

STATEMENT OF COPYRIGHT

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ABSTRACT

There has been a growing trend for customer facing organisations (CFOs) to turn to highly demanding information systems such as enterprise resource planning (ERP) in order to improve their interaction with customers. ERPII has the specific capabilities to deliver extended enterprise opportunities; however there have been widespread accounts of implementation failure leading to costly delays and even on occasion, bankruptcy.

There is a lack of research available to business practitioners in terms of how to deliver a successful implementation in these situations and this research aims to address this issue. To achieve this, research has been undertaken using critical success factor (CSF) analysis.

A case study was undertaken comprising of a project team placement within an ERPII implementation environment and follow-up interviews with the project team members were undertaken. In addition, a third piece of empirical research was undertaken consisting of interviews with consultant practitioners of supplier organisations.

This research shows that CFOs implementing ERPII require specific CSFs to be addressed at different points within the implementation lifecycle. 'Critical pathway steps' have been recommended which emphasise the importance of post implementation training.

ABBREVIATIONS

Full Text	Abbreviation
Bradford Metropolitan District Council	(Bradford council)
Business process re-engineering	(BPR)
Benefits realisation	(BR)
Customer facing activities	(CFA)
Customer facing organisations	(CFOs)
Customer relationship management	(CRM)
Critical success factor	(CSF)
Electronic CRM	(e-CRM)
Employee skill systems	(ESS)
Enterprise Resource Planning	(ERP)
Human resources	(HR)
Knowledge management	(KM)
Management skill systems	(MSS)
Material requirements planning	(MRP)
Techno-change management	(TM)

Chapter 1: An overview of the research

1.1 Introduction

Enterprise Resource Planning (ERP) is a software system that operates through a centralised relational database. These commercial investments are considered to be "configurable information systems packages that integrate information and information-based processes within and across functional areas in an organisation" (Kumar and Van Hillegersberg 2000 p210). ERP integrates business processes within the organisation to create a new organisational environment which allows instant access of information to many stakeholders (Ross and Vitale 2000). Implementation of this software enables the seamless flow of information across the organisation, standardises work processes and assists in coordinating interdepartmental enterprise initiatives (Alsène 2007).

The origins of ERP can be traced back to around 1950, when computers were used mainly for inventory control. This software developed to become a standardised software package which managed supplies and was called material requirements planning (MRP). The next generation of software systems was material shipping, which developed in the late 1960s, and was termed MRPII (Orlicky 1975). This system provided greater insights into the planning and capacity constraints by using sales forecasting information, delivering more efficiency into the supply chain (Gupta, Priyadarshini et al. 2004). It is widely acknowledged that MRP has directly lead to the development of modern ERP systems (Chung and Snyder 2000; Jonsson and Mattsson 2006). Traditionally, the returns on investment from ERP software systems have materialised in terms of achieving supply chain efficiencies (Koh, Saad et al. 2006), such as inventory reductions (Dehning and Richardson 2002). More recently, benefits have been realised by improving front-end customer facing functions.

ERPII, which is the next generation of enterprise systems, aligns organisational processes with the external environment. This type of system helps organisations undertake extended enterprise initiatives (Bond, Genovese et al. 2000), enabling internal business systems to be connected with important stakeholders such as customers, suppliers and business partners. Improved processes derived from ERPII have led directly to many new benefits being realised, such as: an information sharing capability, improved decision making ability, better financial management, real-time information for decision making, increased accuracy of transactions, increased flexibility of invoicing and better management of customer and supplier relationships (Beheshti 2006; Velcu 2007).

Organisations are investing in ERPII as this offers a new strategic advantage in terms of its inter-organisational communication capability (Bendoly, Bachrach et al. 2006). One way of achieving high shareholder returns for organisations implementing ERPII is to ensure the integrated system has a greater functional scope, which has been shown to provide a platform for value adding services (Ranganathan and Brown 2006).

1.2 ERP: A major element of IT investment by organisations

The investment cost of an ERP system is high; AMR research estimates the average cost for a fortune 500 company to be between $40 million and $240 million. Despite this high investment cost, many organisations are investing in these systems as they anticipate a high return on investment. It has been shown that ERP announcements do increase the organisation's market value (Hayes, Hunton et al. 2001).

In terms of the demographic uptake of ERP systems, currently over 60% of smaller companies, 39% of large companies and 70% all of Fortune 1000 companies have implemented ERP in some form (Yen, Chou et al. 2002). ERP systems have changed the competitive nature of some entire industry sectors; industries that invest more heavily in them are far more competitive in their nature (MacAfee and Brynjolfsson 2008). AMR research estimated the global ERP market value to be $28b in 2006 (Jacobson, Shepherd et al. 2007).

Organisations can implement an ERPII system outright or upgrade their existing ERP system. AMR and Gartner estimate that the average cost of an upgrade to an ERPII systemto be between 18% and 30% of the initial ERP project cost (Beatty and Williams 2006). The use of ERPII to improve customer satisfaction has been shown to have a direct effect on achieving greater financial gain (Tsamantanis and Kogetsidis 2006). The demand for ERPII is strong, even despite the current economic climate of austerity. A recent report by Forrester Research has shown that 25% of European and Asian organisations intend to invest in their existing ERP systems in 2011 (Hamerman, Moore et al. 2011).

1.3 The business impact of a failed ERPII implementation

Implementing an ERP system is not an easy task, indeed there have been many high profile accounts of bankruptcy of organisations attempting this (Davernport 1998; Ragowsky and Somers 2002; Kim, Lee et al. 2005). Recently, just prior to filing for bankruptcy in 2008, the high street retailer Woolworths invested in a substantial ERPII implementation project up-

grade. This group had been SAP's first UK customer in 1989 and upgraded to SAP SCM software in 2008; this was designed to serve its 820 UK stores by integrating a new merchandising system (Ferguson 2008). This failure is just one high profile account of a widespread problem facing customer facing organisations (CFOs) trying to improve front-end functions by implementing ERPII.

A report by the Standish Group shows that, of all successfully implemented ERP systems, only about 30% deliver the full benefits initially outlined (Krumbholz, Galliers et al. 2000). Empirical research has highlighted that even when the technical implementation itself has been a success, there can be difficulties in establishing the most effective processes for achieving the desired benefits (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005). This has been termed technical isomorphism (Batenburg, Benders et al. 2008).

In excess of 90% of all ERP implementations have been found to run past their scheduled go-live date on account of implementation problems (Scott and Vessey 2002). More recently, only about 35% of ERP implementations have been identified as being delivered on time and within budget (Dong, Neufeld et al. 2009). Research has shown that poorly managed people and process related issues contribute significantly towards the failure in delivering many IT driven change programmes (Doherty and King 2001). In addition to the allocation of specific resources required for a successful implementation, it has been shown that problems can arise at any stage of the implementation life-cycle (Markus, Axline et al. 2000) making implementations even more difficult to undertake.

1.4 Motivation for the current research

In 2004, the author of this research witnessed an ERPII implementation failure. In this instance, the organisation in question was a CFO wishing to improve their customer service. This organisation implemented an extremely ambitious IT driven improvement program which involved the replacement of many failing legacy systems which ran throughout the organisation. However, failure to deliver the intended benefits resulted in suspension of the project with the organisation reverting back to legacy databases. Subsequently, this organisation re-invested to see the implementation through to completion. As a result of this experience, the author became aware of the serious implications of ERPII implementation failure and the devastating effect it has on organisations. This experience has been the driving motivation for the current research. In the opinion of the author, this situation could have been averted if there had been more guidance available to the business practitioners involved.

1.5 Research aim and objectives

Whilst there has been significant research directed towards achieving successful ERP implementations, termed critical success factor (CSF) analysis, little research exists for CFOs looking to implement ERPII. By its very nature, ERPII implementations are complex undertakings affecting many aspects of the organisation and as such a clear aim was essential.

This research has solely focused on CFOs implementing ERPII, and as mentioned, this is due to personal experience in this area. In the scope of the current research, the specific aim was to understand how to successfully implement ERPII in CFOs. An overriding research question has been set to achieve this aim.

The overriding research question

"What are the CSFs contributing to a successful ERPII implementation in a CFO?"

It was important to focus on this single issue so as not to run the risk of tackling more than that possible to achieve. To address the overall research aim, two research objectives were set, which were designed to give focus and direction to the research undertaken:

Research objective one

"Develop a CSF model to investigate resource allocation during ERPII implementation and formulate an understanding of these in terms of benefits realisation"

An appropriate model was required to capture and categorise all of the information involved in an ERPII implementation. Many factors are involved in the implementation process and all of these needed to be evaluated in terms of their contribution towards benefits realisation.

Research objective two

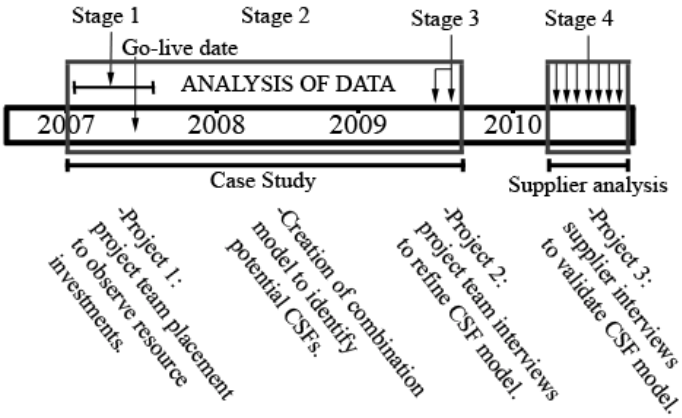
"Refine a framework of CSFs based on different stakeholder perspectives to gain an understanding of how resource allocation contributes towards benefits realisation"

An analysis of CSFs was required to understand specific ERPII implementation issues for CFOs. In answering the overall research aim a validation process was required which incorporated key stakeholder perspectives to create an accurate picture of CSFs involved.

1.6 Overview of the research

This research has been conducted within the framework of the DBA programme and involved four key stages as highlighted in figure 1. Within the taught phase of the programme an inductive piece of research was undertaken (stages 1 and 2). This involved using observations from a 'live' ERPII implementation to develop a theory as to how resources applied contributed towards benefits realisation. Within the research phase of the programme a deductive piece of research was undertaken (stages 3 and 4). This involved testing the theory developed by presenting findings to key stakeholders for validation.

Figure 1: Four stages of research methodology



The initial piece of inductive research was designed to achieve the first research objective; here a theory had to be developed in order to understand resource investments in terms of benefits realisation. Stage one consisted of a five-month work placement within the project team of an ERPII implementation (project 1). The project team placement enabled detailed observations to be carried out. A resource based model (Melville, Kraemer et al. 2004) was used in order to categorise factors into their specific resource based areas of: people, process and technology. Subsequently a Combination Model was developed (stage 2), which categorised the observations made in terms of benefits realisation. The Combination Model enabled a theory to be developed and prospective CSFs to be prepared.

Deductive research was undertaken to achieve the second research objective; here the theory developed was tested and the prospective CSFs required for CFOs implementing ERPII were validated. Stage three was the first refinement step of the CSF framework and consisted of interviews with key project team members two years post implementation (Project 2). Stage four was the second refinement step of the CSF framework where seven supplier consultant practitioners were interviewed (Project 3). The combined stakeholder interviews enabled prospective CSFs to be validated using heat map analysis.

Customer facing organisations

This research specifically evaluates CFOs, which are organisations that recognise the importance of improving customer relations in aspiring to deliver service excellence. CFOs design their business infrastructure around their customers' needs (Galbraith 2005) and have the most to gain from ERPII as it offers potentially large returns on investment through improvements in customer interaction. ERPII has far reaching benefits, particularly for those organisations looking to develop extended enterprise initiatives, e.g improving help desk customer service centres and offering automated services.

This research has been set within the context of a public sector organisation. In the current research, the CFO evaluated was Bradford council, a UK local authority. This organisation was looking to deliver service improvements through an ERPII implementation. There has been a growing trend for the public sector to invest in ERPII systems. The last ten years have seen the UK become the largest market for local government IT spending across Europe. UK local government IT spending was estimated to have been £4.5bn in 2007, which was one third higher than Germany, the second largest investor in IT across Europe (Furness 2005).

The use of e-Government services has been rising, and this has been partly driven by the increase of the supply of services available. Developing online government services has been cited as a reason for the fast penetration rate of broadband (Choudrie and Lee 2004). Following the proceedings of the 8th Annual International Conference on Digital Government Research, Pilling and Boeltzig (2007) commented that 99% of Government services in the US and 92% of Government services in the UK had achieved the goal of e-governance.

There are many reasons for the recent investment in ERPII within the UK public sector and one such reason has been enforced legislation to provide previously unavailable or limited on-line services to the public. Across Europe, every EU member state has been committed to driving e-government to deliver an 'information society for all' action plan. Within the European Union, member states strategy has been driven by this legislation from the European Commission 1999, and subsequent action plans of 2002 and 2005. The last ten years have seen technological developments occurring throughout government services, and the UK has taken a leading role in ensuring this commitment was met. Within the UK, the 'Modernising Government' initiative was established and this was passed in parliament for the delivery of its services to constituents, ensuring "public services are available 24 hours a day, seven days a week, that joined up public services are achieved and that all dealings with government being deliverable electronically by 2008" (HMSO 1999).

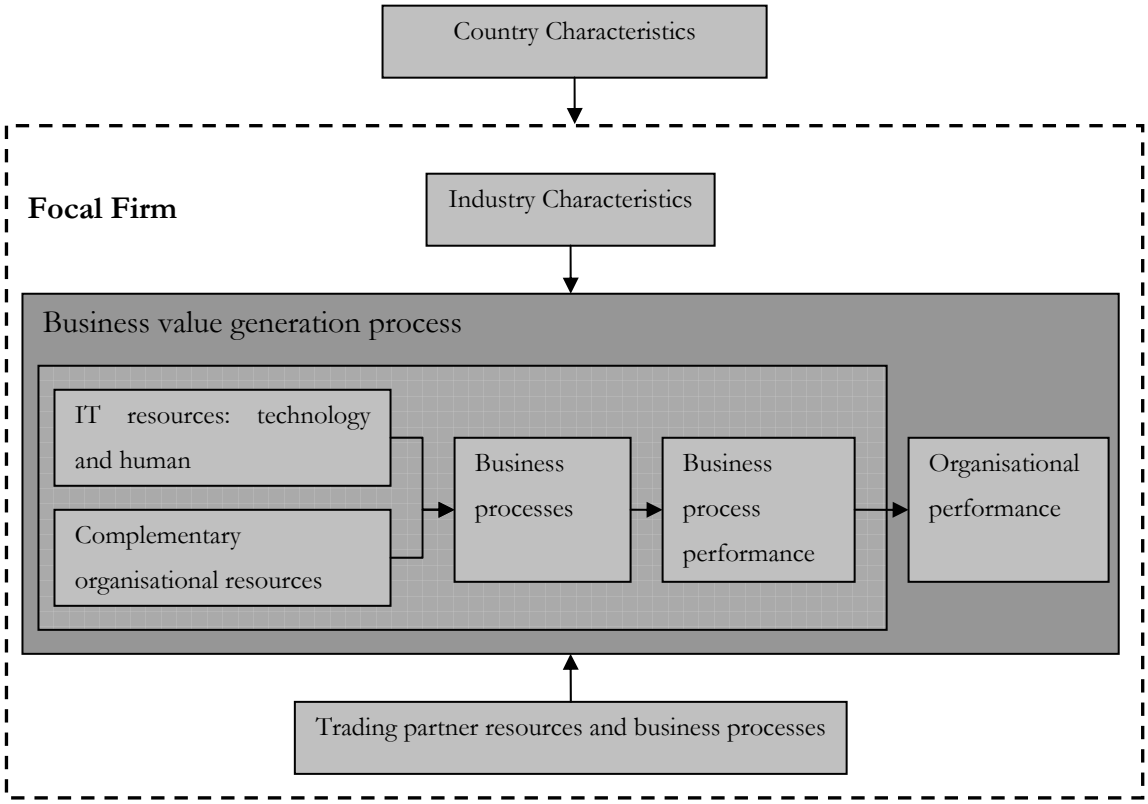
Chapter 2: Literature review

2.1 Introduction

The literature review draws upon publications found primarily in the IS body of literature, however other fields of literature sources were touched upon and steps were taken to ensure that inter-subjective relationships did not cause any misunderstandings.

In the current research, the discussion has been developed around the implementation process from a resource based perspective and as such, the organisational issues involved in the implementation process are evaluated accordingly. Resources allocated during the implementation of any IS system fall into three principal areas; people, process and technology. As denoted by Mehta, Oswald et al. (2007), these are considered to be the fundamental pillars involved in all IS programmes. The IT Business Value model of Melville, Kraemer et al. (2004) was used to categorise the literature reviewed. This resource based model has been used to clearly divide the organisational activities into 3 main categories: people, process and technology (Figure 2). Initially an introduction to each resource area was prepared, followed by a detailed evaluation of key issues arising within each.

Figure 2: IT Business Value Model



Source: (Melville, Kraemer et al. 2004)

The model used helped to identify the business value derived from IT investments. In regards to the people related business value, the model clearly identifies these as the 'Complementary organisational resources' (all staff members using the IT system). In addition, regarding the process related business value, the model clearly identifies these as the 'Business Processes' and the 'Business process performances'. Finally, in regards to the technology related business value, the model clearly identifies these as the 'IT resources: technology and people'.

Academic literature to date has looked to address underlying problems causing failure during ERP implementations. Indeed, there are many research areas within the discipline of ERP and Al-Mashari (2003), for example, identifies 24 specific areas. However, ERPII is a relatively new concept in the field of IS and as such it is important to understand how current literatre supports ERPII implementations and if any gaps in literature exist.

2.2 Resource based evaluation of ERP implementations

The resource investments involved in the implementation of ERP have been evaluated in the context of the three resource based areas of people, process and technology. Each has been reviewed separately below and key issues cited in literature have been identified. The first resource based area evaluation is 'people'.

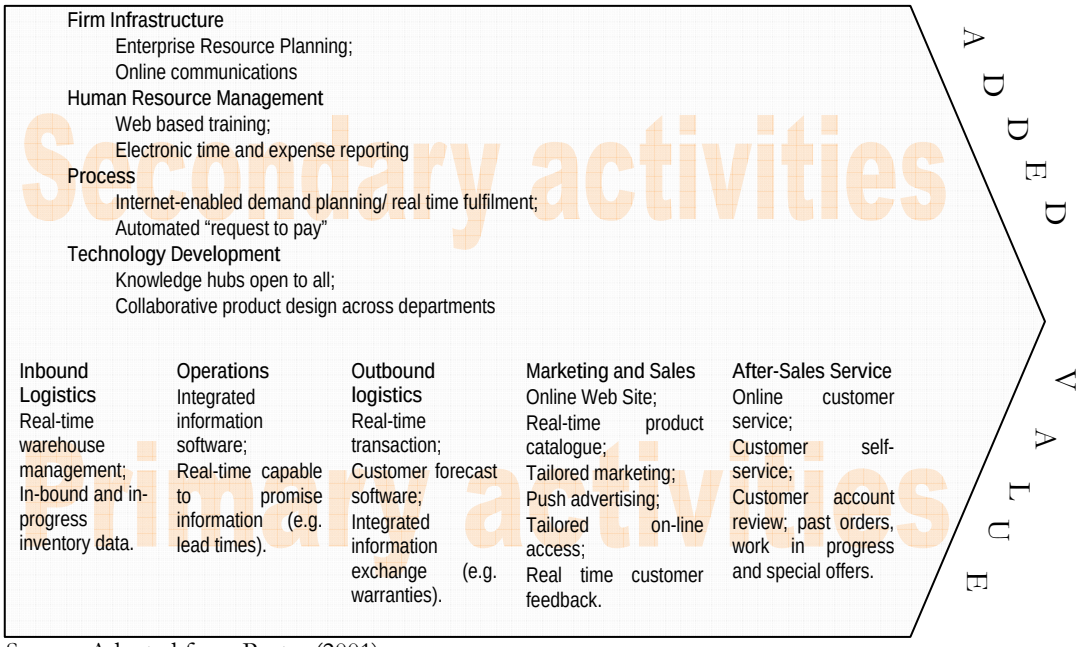
2.2.1 An introduction to the area of 'people'

The customer facing activities

One important 'people' related concept of ERPII is making appropriations for the customer facing activities (CFA) the software solution will introduce. ERPII systems facilitate the optimisation of CFA, which leads to improved interaction with the customer. These relate to the automated services offered and supporting customer-facing staff using the new system. This can be either through delivering system support for front-end workers who interact with the customer or through offering automated services directly to the consumer. This requires front-end services and relies on having a fully integrated supply chain (Koh, Saad et al. 2006).

In identifying the CFA, all of the organisational activities which contribute towards the delivery of services for the customer need to be mapped. Porter extended his well-established model of the value chain (1985) to enable businesses to offer added value through e-service (Porter 2001). This "e"-value chain model outlines the dimensions from a primary and secondary function perspective (Figure 3).

Figure 3: The "e"-value Chain



Source: Adapted from Porter (2001)

The primary activities of an organisation support automated services, particularly where inbound logistics and operations are integrated with outbound logistics. The customer facing departments can support this, delivering CFA such as sales, marketing, customer services and after sales service. Through the secondary activities an ERPII system can transform a firm's architecture in terms of delivering automated services making it more customer-centric (Galbraith 2005). In addition, new customer facing processes within the organisation can be introduced.

Many public sector organisations have CFA and have been investing in ERPII systems to deliver service improvements. Business benefits within the public sector primarily revolve around delivering e-governance, which has been shown to add substantial value to the organisation (Daniel and Ward 2006). Yu (2007) identified the performance indicators for ERP driven e-government initiatives as being: number of registered public users (citizens/businesses), cost and time for requesting and receiving services, e-government maturity and usage, levels of personalisation, levels of public (citizens/businesses) satisfaction on efficiency, effectiveness, trust, and completeness of e-government services.

ERPII allows services to be available through an enterprise portal which is the architecture of automated services. Web portals allow customers, staff and business partners instant access to services through an integrated system. For ERPII driven e-governance, the development of online enterprise portals allows council staff, local residents and business partners instant

access to their specific information requirements and associated transactional services. The cyber-infrastructure is "an overarching concept that encompasses the hardware, software, services, personnel, and organizations that serve as an underlying foundation in support of collaborative network activities" (Carter and Green 2009 p105). Mentzas, Kafentzis et al. (2007) suggest that only certain environments are conducive to the exploitation of 'knowledge assets', and one such example is that of the development of web-based services.

Automated systems facilitate item refunds or exchange where electronic payments can be re-transferred without difficulty, which are important in the eyes of the consumer (Smith 2005). Customers' needs can be positively determined through listening tools such as undertaking surveys and setting up complaints procedures (Maguire, Koh et al. 2007). Feedback collected can be analysed and acted upon to deliver a basis for improved online customer service. This is especially critical where the ERPII system is open for the use of the general public, where anxiety may preside (Sutanto, Kankanhalli et al. 2009).

Customer facing staff rely on the CFA for carrying out their roles, therefore organisations need to train staff in the new customer facing ways of the system (Gardiner, Hanna et al. 2002). Problems have been highlighted in instances when implemented procedures have not been explained clearly to operatives (Wenger 1998), which creates confusion and misunderstanding. However, it is "practice which brings process to life" (Brown and Duguid 2000 p.96). For front-end staff interacting directly with the customer, appropriate reactive support mechanisms are in place to enable service excellence at the push of a button, or even for delivering up-selling or cross-selling opportunities.

The task of replacing traditional processes with new customer facing ones requires organisations to establish a strong relationship between IT systems and their knowledge workers (Dehning and Stratopoulos 2003). It has been suggested that CFOs must identify and build upon key in-house IT capabilities during an ERP/ERPII implementation. New processes should be based around developing the organisations CFA which requires a detailed evaluation of the inputs and outputs involved in customer transactions (Utagikar 2009). To effectively integrate and align internal and external processes, staff on the front-line need to be informed of the implications towards their role which relies upon a well-managed system of organisational communications to be in place.

Managing Human Resources

A second important 'people' related concept of ERPII is managing human resources (HR), this is a key responsibility of senior management HR department. Important aspects include ensuring end users are appropriately trained and setting up the project team.

Training and education are an essential part of achieving the full potential of any IT based solution and early research has suggested that 15% of the overall budget is required for a successful ERP implementation (Volwer 1999; Vincent, Ashok et al. 2001). The lack of adequate training has been identified as a key reason for inefficiency in IS (Henriksen and Andersen 2008). Organisations are beginning to take the necessary steps; Gupta and Bostrom (2006) noted that in 2004, US organisations allocated $51.4 billion for formal training and the largest proportion was directed towards end-user training.

People are arguably the most valuable resource for any organisation and this is particularly the case for organisations implementing ERP, as the demands placed on the end users are high. This type of implementation often requires significant involvement from end users. This is not restricted by level of seniority, as all employees are end users in some form and all need to be well managed throughout the implementation. It has been suggested that 50% of the resources should be allocated into human and organisational areas (Clegg, Axtell et al. 1997).

Literature shows that resistance to change is an important issue in the field of IS. Markus (1983) first investigated the issue of user resistance and made several recommendations: to get top management support, use technically sound systems, employ user friendly interfaces, train staff and undertake cost based analysis. To secure the greatest success in ERPII implementations, differing managerial approaches are required at different stages of the implementation; a top down approach is required during the chartering phase to get momentum, and a negotiation management approach is necessary later in the implementation due to the number of stakeholders involved (Peppard and Ward 2005).

Given the size and nature of ERP, achieving widespread support, particularly top management support is an essential aspect of any successful implementation (Nah, Lau et al. 2001; Somers and Nelson 2001; Akkermans and Van Helden 2002; Brown and Vessey 2003; Woo 2007; King and Burgess 2008; Dong, Neufeld et al. 2009). However, even when there is top management support, there can be problems. System designers of ERP often aim to provide a system that offers the widest scope of functionality, however, it is easy to see how overcomplicated interfaces do not adequately take into account the specific needs of the user

in performing their roles. This issue was highlighted recently through empirical findings from 96 firms implementing ERP which showed that user satisfaction was not significantly linked to top management support (Law and Ngai 2007).

Research has shown that delivering successful technology implementations requires several key steps: the enrolment of the project team, team preparation, trialling new ideas, and reflection of actions taken (Edmondson 2003). The HR department plays an integral part in facilitating these steps, ensuring resources are allocated efficiently and that these are well managed. The implementation requires a significant number of highly skilled professionals, from setting up the project team, through to allocating the training resources. In establishing the project team it is important to recruit the most highly skilled people which can either be by seconding internal members of staff or recruiting externally. More commonly, organisations are seeking out highly skilled people with winning mentalities (Coulson-Thomas 2007).
In terms of delivering end user training the implementation may cause significant changes to job roles and new job specifications may need establishing. Fostering training and development of skills has been recognised as a key issue to manage change throughout organisations (Othman and Ghani 2008). Compeau, Olfman et al. (1995) provide a critical framework for training in IS, which includes three key phases outlined in table 1.

Table 1: The Three Phases of Training

Initiation Phase	Formal Learning and Training Phase	Post-training Phase
• Identify training needs. • Develop training methods. • Design the training environment. • Select trainees. • Compose training groups. • Train the trainers.	• Conduct the training.	• Evaluate training and learning. • Support trainees. • Evaluate transfer of the training.

- The initiation phase involves all the preparation work required for undertaking the training. It starts with a training needs analysis, and users' tasks and needs can be understood primarily by the project team making adequate time for end users to be involved in the implementation (Procaccino, Verner et al. 2005). The training methods and appropriate environment then have to be determined and finally, the trainers have to be selected and trained.

- During the formal learning and training phase, all of the training resources allocated within the initiation phase must come together in a timely manner to ensure that all end-users are trained.

- During the post-training phase the transfer of knowledge is essential. Post-training should be combined with end-user learning to ensure continual learning. Training evaluation is also an important aspect of this phase and it has been suggested that this should be an information gathering exercise throughout the lifecycle of the implementation (Carroll and Rosson 1995).

Empirical research has shown that serious ERP implementation problems can be associated with organisational culture (Boersma and Kingma 2005) and research undertaken across the different continents has shown mismatches to be culturally driven. Empirical research undertaken in Hong Kong has revealed that inherent cultural perspectives drive ERP implementation practice, such as where information is strictly managed (Davison 2002). In contrast, Bendoly, Bachrach et al. (2006) identified that Chinese managers are more highly enthusiastic about the communication capabilities over the newly established independent process compared to US managers. Cultural idiosyncrasies were identified in Greece, where work ethic related barriers dictated implementation timescales (Koh, Simpson et al. 2006).

2.2.1.1 Key 'People' related issues for CFOs implementing ERPII

Building upon the key concepts involved in ERPII implementations, it is possible to filter key specific issues. In regards to people related activities within CFOs, the following issues have been identified are discussed below:

Managing change within CFOs implementing ERPII

One important area of change is the adoption of customer relationship management (CRM) practices through ERPII. This customer facing activity is a new capability to previous ERP systems. King and Burgess (2008) were the first authors to compare and contrast CSFs required for ERP and CRM initiatives. Their findings revealed that of the top five CSFs for each, only one matched, and this was top management support (Table 2).

Table 2: Ranked CSFs for ERP and CRM respectively

RANK	ERP CSF	RANK	CRM CSF
1	Top management support	**1**	Top management support
2	Project team competence	**2**	Communication of CRM strategy
3	Interdepartmental cooperation	**3**	Knowledge management capabilities
4	Clear goals and objectives	**4**	Willingness to share data
5	Project management	**5**	Willingness to change processes

There are great differences in the way ERP and CRM implementations should be managed and ERPII brings these two disciplines together. Resistance to change is a big problem faced by organisations implementing ERPII and one key issue is managing the change brought about by the CRM initiative.

The issue of top management support has been reinforced by Kemp and Low (2008) who identified that an ERP programme that is supported managerially and financially to encourage staff training is more effective. In terms of communication of CRM strategy, Rai, Lang et al. (2002) showed that attitude towards the new system is reflected upon behaviour. In terms of integrating knowledge management (KM) capabilities of the system and having a willingness to share data, Barki, Paré et al. (2008) identified that the lack of personal ownership given to users is a reason for user acceptance failings in ERP implementations. Finally, in having a willingness to change processes to accommodate a CRM philosophy, empirical evidence shows that one reason for failure is that the users themselves refuse to change their behaviour in order to accommodate a new system (Lapointe and Rivard 2005).

Orlikowski and Hofman (1997) outline two philosophies of change in IS implementations; one is the planned change, whereby internal manipulation is undertaken to charter the outlined plan and the second is an objective (emergent) led plan, whereby the external factors are utilised or circumnavigated to achieve the desired goal. In terms of planned change, Ward, Hemmingway et al. (2005) identify that three types of approaches are commonly used for reducing resistance to change in ERP implementations which are listed in table 3. The level of resistance encountered during the implementation determines the approach to take.

Table 3: Approaches for Tackling Change in ERP

Approach 1	Power based (financial, political, etc).
Approach 2	Interest based (needs, mutual benefit, etc).
Approach 3	Rights based (legislation, contractual, etc).

- The power based approach is more authoritarian and ideal for situations where political ideals need to be established for more widespread occurrences of resistance.

- The interest based approach is led by the stakeholders to tackle pockets of resistance.

- In the rights based approach the rights of the end user are the focus in order to tackle individual resistance.

A link has been identified between job impact and user reaction in ERP systems and too much onus should not be put on the end user in terms of additional workload (Shepherd, Clegg et al. 2009). Empirical research reveals that "work related strain among IS professionals is reaching epidemic proportions" (Love, Irani et al. 2007 p524). Unsurprisingly, resistance has been identified in both changing business processes and mapping employee roles (Thong, Yap et al. 2000; Aladwani 2001), and both tasks must be managed extremely diplomatically. In tackling this, the HR department can be actively involved; for example by establishing staff motivational activities such as bonus schemes or team building activities.

Establishing a training strategy

It has been suggested that organisational strategy should dictate technological initiatives such as ERP investments (Ndede-Amadi 2004). To ensure the system performs well and users accept it, an important step is the establishment of a training strategy. This is an overall approach to which the training programme will adhere. For successful ERP implementations, literature shows that establishing a training strategy is important as end-user training has a

direct influence on system usefulness (Igbaria, Guimaraes et al. 1995). CFOs implementing ERPII need to be aware of the implications CRM has in terms of training requirements.

Yu (2005) undertook empirical research showing that the training delivered during an ERP implementation significantly affects three key areas: user pre-implementation expectations, the degree of data accuracy, and the degree of system stability. These are all important aspects to consider for ERPII implementations as each element will ensure that the system will be accepted. This author also recommends training the end user about the concept of the ERP system for the full benefits of the system to be realised.

Training provides the basic skills needed for end users to perform their duties and evaluating end-user training is an integral part of any IS. For ERPII system facilitators, training enables staff to perform their CFA. Historically, training has revolved around ensuring a user can perform their individual tasks (Kang and Santhanam 2003) and this is an issue that will become even more important as the intricacies of front-end systems are realised. A number of key recommendations derived from previous IS implementations have been outlined by King and Burgess (2008) who suggest the need for more research in user training and system customisation for CRM driven implementations.

A training strategy which incorporates CRM elements will need to monitor closely the different stages of the training schedule to ensure each stage takes appropriate actions. One useful guide has been developed by Compeau, Olfman et al. (1995) who outline a four-step process to evaluating end-user learning (Table 4).

Table 4: Evaluating End-user Learning

Step one	**An implementation phase** Appropriations are made across the breadth of training development, which includes the preparation of materials along with the formation of the training groups.
Step two	**A formal training and learning phase** Methods of training are decided upon (face-to-face, video, computer based, or some combination). Also the trainers themselves have to be selected (outside consultants, in-house trainers, or the learners themselves – through self-study) and trainee characteristics appropriate to specific approaches could be utilised.
Step three	**A post training phase** Immediate and long-term measures can be made of the transfer rate of knowledge to the workplace.
Step four	**A formative appraisal of several key aspects** Including the trainees, software, tasks, organisational characteristics, training design, training delivery, and training effectiveness.

Evaluating the training requirements at the implementation phase (step one) has always been an important part of developing the training strategy. Irani, Love et al. (2005) identified that user opinion during the implementation process is critical since this enables insights of any new IS to be revealed. Preparing users for the imminent changes involved in ERPII implementations is necessary and can be achieved by assessing employee attitudes and establishing appropriate training materials to encourage acceptance (Abdinnour-Helm, Lengnick-Hall et al. 2003). In addition, matching the training with user performances can ensure the training content/approach is appropriate to the needs of the audience.

Establishing the formal training (step two) is a large undertaking in any ERP implementation since this part of the training has to ensure that all system users are trained to an appropriate level. Bostrom, Olfman et al. (1990) identified that IS based end-user training comes in two forms; learning by doing and learning by understanding, and ultimately this comes down to the individual learning style.

The learning environment is an important aspect and there are many options available. Evaluating the most appropriate training methodology is an important part of developing the training strategy. Classroom based training is one form of training and empirical evidence suggests that a direct manipulation interface is particularly good for guiding new users through system structure and functions (Davis and Bostrom 1993). Gupta and Bostrom (2006) put forward a framework for understanding training methodology which measured: (i) technology; learning with computers and learning from computers, and (ii) technique; instructor led or self-taught. Furthermore, as training methods are changing to keep pace with technological innovation, e-learning solutions are becoming more preferable to organisations embarking in continual learning philosophy.

Technologically enabled training is beginning to play a key role in training end users (Alavi and Leidner 2001). In addition, on-the-job training is a good way to train and evaluate staff and is an effective way of converting learning into practice. This can be facilitated in a number of ways and one effective approach is via e-learning. O'Brien and Hall (2004) highlight the importance of e-learning as a tool to deliver training needs, citing: cost, time and serving needs as three key issues where this platform outperforms traditional methods. Gupta and Bostrom (2006) also advocate e-learning as it has been found that participants have overall greater knowledge acquisition than traditional learning methods due to its ability to simulate technological functionalities.

A post training phase (step 3) can evaluate the transfer of knowledge. two important scales were introduced to accurately measure the success of new IT systems: 'perceived usefulness' and 'perceived ease of use' (Davis 1989) and these scales have been identified as factors in overcoming resistance (Igbaria, Guimaraes et al. 1995). In tackling 'perceived ease of use' there are a few tasks that can be completed in order to improve this, for example, writing job related changes into training materials, explaining what users have to do and which elements are voluntary (Lee, Lee et al. 2006). In tackling the issue of 'perceived usefulness', research by Barki, Paré et al. (2008) proposed the idea of involving system facilitators in the design and implementation process so they acquire a sense of psychological ownership of the IT system. One solution could be the investment in 'self-identity' programmes, where users are involved in the implementation process as this overcomes perceived reservations towards ease of use and perceived usefulness.

A formative appraisal of key aspects (step four) can play an important part in evaluating the effectiveness of the training strategy. It includes evaluations of the trainee's performance, the effectiveness of the software, the usefulness of the training tasks, organisational characteristics in terms of instilling performance measures, the appropriateness of the training design, the execution of the training delivered, and finally the training effectiveness. This is the last chance the organisation will have to make corrective measures such as to introduce mop-up training and bespoke training courses.

Quantifying, delivering and evaluating the training

Since the dawn of complex systems, such as ERP, which offer unique capabilities to end users, it has been imperative to improve end-user training (Olfman and Mandviwalla 1994). It is always necessary to quantify, deliver and evaluate the training of an ERP implementation to ensure the new roles and responsibilities are rolled out correctly. This is particularly the case for ERPII implementations to ensure CFA are implemented correctly, as these need to be adequately understood by the end user.

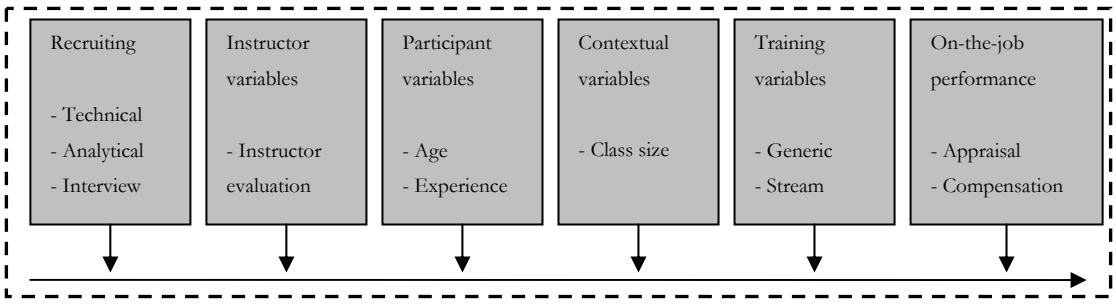
Quantifying the training needs of an ERP implementation begins with an evaluation of the training requirements of end users. Determining the level of training required within the organisation is essential and one approach to tackle this is that of organisational validity, which refers to the fit between the system and the competencies of the system facilitators (Markus and Robey 1983).

Keeping training records during the implementation is essential for quantifying the training needs. In this way, system utilisation directly relates to system performance (Cheney, Mann et al. 1986). One approach is to assess the skill levels of system facilitators which is required in order to establish future training needs. Two key variables that influence training quantification are: general computer efficiency and task specific efficiency (Marakas, Yi et al. 1998). Indeed determining the competencies of staff members through computer self-efficacy is important as this has been identified as a contributing factor in ERP implementation success (Kwahk and Lee 2008) and is an easy process, although time consuming.

An assessment of the training resources is undertaken to ensure these needs can be met. Sumner (2000) outlined one risk factor of the ERP implementation process as being the underestimation of the scale and the requirements of the training, implying that a training schedule is necessary. As an ERPII implementation requires the allocation of training to a large number of staff, assessing the full extent of the training can be challenging. In delivering the training, Mehta, Oswald et al. (2007) have identified that employee skill systems (ESS) training is an integral part of IS related training. This enables the HR function to keep up-to-date changes in employee competencies.

A training-performance pathway described by Devaraj and Babu (2004) can be used to facilitate this process and highlights six important steps (Figure 4).

Figure 4: Selection-training-performance Pathway



Source: Devaraj and Babu 2004

Recruiting the correct number of trainers is the first stage. Appointing the trainers is an important task and this complex issue is described by Compeau and Higgins (1995), who identified several important criteria which should be observed in the recruitment process: not having computer anxiety, having a playful nature (and self-efficiency in delivering the training), having a good learning delivery style, being able to deliver high quality instruction and having the ability to impart knowledge. In the second stage, the trainers are trained and evaluated in order to deliver the necessary training. The third stage is delivering the training, where having

a clear understanding of the participant variables is important, such as their age and experience, which determine the extent of the training for these individuals. The fourth stage takes place once the trainers are ready since they prepare the training materials and determine these based against class sizes. The fifth stage involves the training materials, which can be generic or tailored to meet the specific needs of training groups. The relationship between training and job performance of IS has been shown to be critical, with IS managers being closely involved in courseware revisions where necessary (Devaraj and Babu 2004). Finally, the sixth stage is ensuring the training delivered is evaluated, and more importantly, the trainers themselves are evaluated.

Evaluating the training presents the implementing organisation with options during the implementation process which can ensure that the most appropriate training is applied. It has been suggested that an effective training strategy should include regular appraisals by project managers and evaluations at the completion of the training curriculum (Devaraj and Babu 2004). This research identified that well delivered training will improve on-the-job performance within three to six months. If a variety of training approaches are available, and the specific needs of the staff to be trained are understood, important training decisions can be made. Only by performing an evaluation of the training resources can these be allocated to serve the needs of the implementation.

Identifying and providing end-user support

Investing in people is an integral part of maintaining an ERPII system, and involves undertaking training needs analysis to developing the relevant skills within the organisation. ERPII systems introduce new CFA into the daily routine of many endusers. It is not simply a case of establishing new CFA; each of these have to be sufficiently facilitated and it is important to identify and provide end-user support for each customer facing role. This value creation can be achieved through IT driven effectiveness, requiring a highly skilled workforce, which is essential for external integration programmes (Cagliano, Caniato et al. 2006).

Facilitating training requirements post go-live is a key issue and should be "evaluated with regards to both its immediate and its longer-term impacts" (Carroll and Rosson 1995 p41). A structured training schedule is required as often large organisations have a high turnover of staff and training inductions, as well as refresher and more detailed specialist training can be delivered this way. The process of evaluating the "knowledge workers role" has been described by Shah, Eardley et al. (2007), who suggest that the main issue is to articulate their knowledge requirements, from this actions can be taken in assigning tasks with job roles.

There are a number of key training tasks required in any IS related implementation and one of these is the appointment of a transition champion network, who are people within the organisation that become special advocates, taking appropriate actions to increase the likelihood of implementation success. The role of the IT champion has been evaluated and for them to be effective they must be provided with continual support from the project team (Beath 1991). Markus and Benjamin (1997) advocate change agents, recommending that line managers and IT specialists take leading roles in communicating change benefits. Transition champions are extremely important and it has been suggested that "a forceful internal IT champion is well positioned to encourage a successful IT adoption and implementation without having to rely on external management support" (Prescott and Conger 1995 p36). The formal allocation of experienced ERP implementers to act as project champions has subsequently been found to be critical in the set-up phase as empowered decision making is crucial at this point of the implementation lifecycle (Parr and Shanks 2000).

Establishing a super user network is also a key issue, who are end users that have received additional training and been strategically placed in different functional departments. Super users are an effective solution to disseminating knowledge to end-users who have just been trained. MacAfee and Brynjolfsson (2008) suggest that in order to maximise the return on talent, 'superstars' (exceptional learners) should be identified and utilised for these roles. Using super users offers an additional training approach and Davis, Kettinger et al. (2009) identify that introducing super users increases the overall satisfaction level of the implementation, particularly when these individuals have equally shared decision making power.

Preparing corporate communications

Ensuring that effective communications are in place contributes towards the success of all people related issues. It is important for ensuring that all staff members are updated regarding changes such as CRM benefits and new CFA in ERPII implementations.

ERPII is a highly demanding technology for the user requiring processes of significance to be integrated into job roles, and determining to what extent procedures are explained to operatives is important (Wenger 1998). Interestingly, open and honest communication throughout the lifecycle of the ERP implementation is not associated with success (Sarker and Lee 2003). However, changes deemed important must be strongly communicated to the worker (Boersma and Kingma 2005).

One contention is that "Change management is necessary for information technology implementation success" (Sutanto, Kankanhalli et al. 2009 p134) and that a two-way communication process must be put in place for feedback to be gathered and acted upon in a timely manner. These authors have identified that close cooperation helps communication and enhances the end users' belief in the transition champion's vision for change. Research involving organisational learning of e-government projects shows that where efforts are made to improve inter-relationships among organisational elements resistance is significantly reduced (Phang, Kankanhalli et al. 2008).

Grant (2003) identified that managers at an operational level will not support a new system if their information needs are not addressed. This research highlighted the need for a coherent communication plan, particularly between business and IT personnel. If the communication strategy is driven by a unified vision of the business then IT strategy conflicts can be avoided during the implementation. It is important that senior management governing the business and IT elements are involved in preparing the organisational communications.

Kwahk and Lee (2008) suggest that an organisation's readiness for change is essential for any ERP adoption. This finding is supported by Kemp and Low (2008) who suggest it is fundamentally about undertaking three key tasks (Table 5): raising awareness of the changes, explaining the benefits and setting achievement target rewards. This is particularly important for CFOs implementing ERPII.

Table 5: Creating a Readiness for Change

Task 1	**Favourable awareness response** Promoting globally the introduction of new business processes and changes in the organisational structure.
Task 2	**Favourable feelings response** Promoting system features and benefits to end users.
Task 3	**Favourable adoption intention** Promoting rewards and incentives to relevant stakeholders.

- Task one: during an ERP or CRM implementation it has been found that a critical task is ensuring the project team promotes system features and benefits to end users and utilise system users to define the functionality. This can be achieved through a variety of management approaches; top down, coalition and negotiation (Ward, Hemmingway et al. 2005). Research unfortunately shows that "Participants of the implementation projects do not appreciate the significance of particular factors which have an important influence on project success" (Soja 2006 p430).

- Task two: the end users should be made aware of the features and benefits so that a more favourable feelings response is achieved.

- Task three: all rewards and incentives of the project should be coherently communicated to key stakeholders at the appropriate time. Failure to communicate effectively can be problematic; empirical evidence of one large international organisation implementing ERP shows significant problems arising from lack of communication: "institutionalised marginalisation of some business units within the organisation created a highly political and largely disintegrated social context for the ERP implementation" (Elbanna 2007 p121).

2.2.2 An introduction to the area of 'Process'

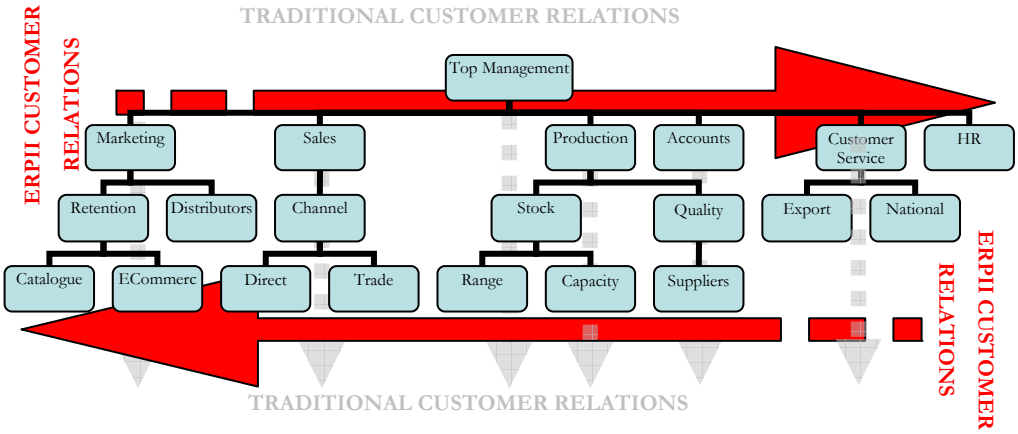
The resource investments involved in the implementation of ERP have been evaluated in the context of the three resource based areas of people, process and technology. Each has been reviewed separately and key issues cited in literature have been identified. The resource based area evaluation described here is in relation to 'process'.

Business process re-engineering

One important 'process' related concept of ERPII is the business process re-engineering (BPR) that is required. CFOs implementing ERPII will most likely need to restructure the organisation in some way in order to accommodate changing processes and this can affect both the architecture and the management structure within the organisation. During an ERP implementation it has been shown that there is a "need to integrate information flows internally before going outside, since otherwise it is not possible to align internal and external processes" (Cagliano, Caniato et al. 2006 p294).

The process driven organisational structure of a CFO is shown in Figure 5. Processes must be restructured so that all departments are linked internally and relate to the customers' needs during ERPII implementation. These now "flat" organisations with ERPII-driven customer relations, as opposed to "hierarchical" traditionally-driven customer relations, offer improved management actions which lead to improved communications and to employee empowerment (Powell, 2002).

Figure 5: Process Driven Organisational Structure



Adapted from Powell (2002)

Traditionally, organisations implementing ERPII have a vertical "hierarchical" structure in terms of their architecture. However, it has been found that horizontal integration promotes information sharing and enables new capabilities for the customer (Utagikar 2009). In terms of the management structure, if benefits are to be realised, appropriate decisions must be made in order to avoid what has been termed being "asleep at the wheel" (Willcocks and Sykes 2000 p32) where management treat IT independently from the rest of the organisation. Large and medium-sized enterprises have been found to be more outward-oriented in ERP adoption and emphasise inter-organisational integration and e-commerce capabilities (Laukkanen, Sarpola et al. 2007).

One important finding is that "To accomplish the high level of integration of data across functions, ERP software dictates that the firm must change its core business procedures and processes to fit the software" (Lindley and Topping 2008 p87). Any misalignment between the ERP system-embedded knowledge requirements and the organisations' existing processes, comes down to "a firm's ability to recognise differences in its existing processes and the benchmark processes in the ERP system" (Ho, Wu et al. 2004 p243). Koh and Simpson (2005; 2006) acknowledge that ERP does not accommodate uncertainties, for example, unexpected demand pattern changes in the supply chain, which is an important aspect of electronic customer relationship management (e-CRM), where customers' demand patterns may change with the seasons.

Organisational processes have been defined as a "mechanism that exists to satisfy one or a collection of stakeholders' expectations from the organisation" (Edwards and Peppard 1997 p755). In establishing the desired processes of an ERPII system, the redundant processes need to be identified and changed (Hammer 1990) and fundamental new processes need to be introduced. These changes may affect every function of the organisation as considerable changes need to be made throughout the organisation.

Doherty and King (2001) found that IT managers perceive organisational issues as the most important to tackle during the implementation of ERP. Integral to delivering a positive organisational contribution, these authors cite five specific issues to address, as outlined in table 6.

Table 6: Key Issues of Organisational Change

Issue 1	Assessment of cost and benefit.
Issue 2	Alignment with IS strategy.
Issue 3	Prioritisation of tasks, in line with organisational needs.
Issue 4	Assessment of future needs of the organisation.
Issue 5	Re-engineering of business processes.

In terms of the Public sector's approach to undertaking cost and benefit assessments (Issue 1) research has identified that this is not a top priority (Eastwood 2007). A report commissioned by Business Insights surveyed 151 government agencies and concluded that "While cost savings are important to agencies at local and regional levels, it ranks lower than more service-related issues such as allowing constituents to perform self-service functions online and extending interactions beyond business hours"(Eastwood 2007 p122). The main goal of e-Government strategy for government was found to be improving constituent satisfaction, followed by enabling constituent access to information beyond business hours.

The public sectors alignment with IS strategy (Issue 2) has also been investigated. An evaluation of two different UK local authorities compelled to implement online systems in response to central government policy showed that little strategic appraisal has been undertaken (Irani, Love et al. 2005). In contrast it has been found that European e-government strategies are built around the principle of adding value for Citizens. ERP systems with integrated portals deliver integrated services which enable stakeholders to access information in a more convenient way (Wimmer 2002; Kaliontzoglou, Sklavos et al. 2005; Charalabidis, Askounis et al. 2006). An evaluation of secondary data from 99 countries revealed that despite high levels of anticipated payoffs, little research links e-Government with performance parameters (Srivastava and Teo 2007).

To prioritise tasks in line with organisational needs (Issue 3), a customer-focused driven ERP inter-organisational plan is required, which has been described as "process improvements that in turn enhance customer satisfaction and firm performance" (Koh, Saad et al. 2006 p463).

Whilst assessing the future needs of the organisation (Issue 4) can be achieved even after the initial ERP implementation. Martin and Cheung (2005) for example, undertook empirical research within an organisation upgrading their existing system to incorporate an ERPII module and this showed an immediate effect on customer purchasing habits, and significantly reduced costs and inefficiencies.

Finally, in addressing re-engineering of business processes (Issue 5), Ward, Hemmingway et al. (2005) suggest that there are failures in establishing the most effective ERP and CRM implementation processes for achieving delivery of the business value desired, and state that the "new or extra benefits that we expected have not materialised"(Ward, Hemmingway et al. 2005 p106). It is important to have some way of measuring process performance changes and Farbey, Land et al. (1999 p190) define IT evaluation as: "a process, or group of parallel processes, which take place at different points in time or continuously, for searching and for making explicit, quantitatively or qualitatively, all the impacts of an IT project and the programme and strategy of which it is a part".

Customer relationship management

A second important 'process' related concept of ERPII is CRM, this is the philosophy of dealing with the interactions between the organisation and the customer. Kotler (1997) first recognised that CRM begins principally with a deep analysis of customer behaviour and Achrol and Kotler (1999) went on to highlight the potential of CRM, given the information revolution of the day. Using personal information to deliver longstanding customer relationships is about serving the customers current and future needs (Jackson 1985).

ERPII develops a seamless link with external stakeholders and is an ideal solution for CFOs looking to improve their interaction with the customer. It is important to have a clear understanding of the principles of CRM prior to ERPII implementation, as it "integrates information from internal and external sources to guide managers and field personnel in the development and presentation of the firm's value proposition" (Stein and Smith 2009 p198). However, little research exists to bridge the gap between CRM and ERPII implementation requirements.

CRM has been positively identified as increasing a firm's financial performance in both ERP and non-ERP environments (Palmatier, Scheer et al. 2007; Stein and Smith 2009). Furthermore, personalised CRM initiatives have been shown to positively influence government reputations (Silva and Batista 2007). CFOs that embrace this revolutionary change by implementing ERPII can make significant improvements through the developments in maintaining relationships with customers. ERPII enables institutions to improve access to their services and also allows for more personalised interaction. Day (2000) proposes that successful CRM strategies are associated with three organisational characteristics (Table 7).

Table 7: Characteristics of Successful CRM Strategies

Strategy One	An organisational relationship orientation.
Strategy Two	Developing and utilising knowledge of the customer.
Strategy Three	Effectively integrating and aligning internal and external processes.

There is no doubt that well managed customer information can achieve value-adding service, and that ERPII is an ideal solution to manage this activity. However, in order to have an organisational relationship orientation (strategy one), steps need to be taken to manage the staffing requirements this places upon the implementing organisation. Developing and utilising knowledge of the customer (strategy two) requires end users to manage knowledge (knowledge workers). These individuals should receive specific training in customer management in order to understand how to best develop and utilise this knowledge of the customer. Ensuring the system incorporates the approptiate features is essential if the benefits of the system are to be realised. Effectively integrating and aligning internal and external processes (strategy three) which are appropriate for the end user, is important in ERPII environments. If the system is not integrated appropriately this has implications on the training requirements for the staff operating the system. The lack of adequate training has been identified as a key reason for inefficiency in system usage (Henriksen and Andersen 2008).

One insight can be gained from the research of Rigby, Reichheld et al. (2002) who cite four perils organisations should avoid when adopting CRM (Table 8). Often organisations only get one chance to implement ERPII and if any of these perils are overlooked it could spell trouble at the go-live date.

Table 8: Four Perils of CRM Strategy

Peril 1	Failing to align processes with the CRM.
Peril 2	Overusing technology.
Peril 3	Customisation.
Peril 4	Stalking, not wooing customers.

Failing to align processes with the CRM is something that can be addressed by ensuring key end users are involved in the design phase. In the context of ERPII, overusing technology is an issue that relates specifically to the increased workload placed on the knowledge workers of the organisation who need to be provided with only the technical features required for their roles. Customisation is essential for supporting the knowledge workers and can be achieved by

fully mapping the responsibilities of customer facing staff in order to deliver effective CRM benefits. Finally, the full benefits of the system can be realised in a CRM environment if end users are fully supported with training, ensuring they learn how to interact with the customer using the system to its full potential, wooing, not stalking, the customer.

The e-CRM supports customer service personnel and improves interaction with customers, leading to better services and customer satisfaction (Adebanjo 2003). In the public sector, e-CRM relates directly to e-Governance which aims to create values for citizens, businesses and the government. These values relate to: service, citizen, business, government employee, organisation, institution, administration, society and the nation (Yu 2007). E-government is the use of IT to provide citizens with better information and services (Thong, Yap et al. 2000). "Electronic government (e-government) encompasses a wide range of services: dissemination of information, commerce with the private sector, services to individual citizens and businesses, and participatory democracy" (Irani, Love et al. 2005 p62). It has been suggested that offering e-government services can deliver the responsiveness of governments to serve the needs of the people (Vélez-Rivera, Días et al. 2004). Wong, Fearon et al. (2007) suggest that local government can benefit from their ERPII system by developing a new e-Citizen relationship.

Implementing e-CRM requires careful consideration and Pan and Lee (2003) outline five essential management steps in achieving this with ERP which are listed in table 9.

Table 9: The Five Step Process for Delivering e-CRM through ERP

Step 1	Identify existing CRM processes.
Step 2	Formulate an e-CRM strategy.
Step 3	Secure top management support.
Step 4	Choose appropriate technology partners.
Step 5	Create new processes within the IS.

- Step 1 identifies that it is important to include end-users in the design phase in order that appropriate customer facing processes can be mapped and introduced into the system blueprint. ERPII can deliver business benefits through e-CRM if existing CRM processes are mapped enabling the integration of customer management and e-business activities (Sharif and Irani 2005). Rodgers and Negash (2007) highlight that offering web-based services increases customer satisfaction and relate this to the problem-solving capabilities this offers customers.

- Steps 2 and 3 relate to ensuring top management is involved in the initiation of the implementation and in the formulation of an e-CRM strategy. In terms of public sector organisations, Irani, Love et al. (2005) suggest that a strategic appraisal is key in the evaluation of any e-Government initiative. These authors highlight that historically, this has been undertaken experimentally with subjective politically-influenced judgment. Yu (2007) notes e-government strategy planning is designed to add value to citizens, business and government, but acknowledge that over reliance on ERP systems often brings with it process-induced strategic gaps, i.e. not getting the desired e-Government performance.

- Steps 4 and 5 relate to ensuring appropriate decisions are made by the project team and senior management in terms of selecting the appropriate partners and outlining the e-CRM initiatives desired. Cristobal, Flavián et al. (2007) review factors that influence perceived e-Service quality which include quality of information, service interaction, response time and personalisation. Portals delivering e-service have been identified as being a value-adding attribute in the delivery of e-Government (Charalabidis, Askounis et al. 2006).

2.2.2.1 Key 'Process' related issues for CFOs implementing ERPII

Building upon the key concepts involved in ERPII implementations, it is possible to filter key specific issues. In regards to process related activities within CFOs, the following issues have been identified are discussed below:

Formation of the project team

In terms of realising the CRM benefits of an ERPII system, one key issue is the formation of the project team. It is the role of the project team to facilitate the process changes required and to ensure the overall vision is delivered.

The task of preparing a project team to oversee any ERP implementation process is common practice, however, having "a great implementation team" (Umble, Haft et al. 2003 p245) is crucial simply due to the scope of skilled activities required. In regards to the composition of any type of project team, one school of thought is that team diversity brings the best results; this is important as wide skill sets and a knowledge base has been shown to deliver more benefits (Schneider and Northcraft 1999). In contrast to this position, Teram (1999) advocates a reduction in inter-professional cooperation and coordination, suggesting that specialists of each profession bring different skills and should work independently for the best results. Interestingly, achieving a balanced and empowered team is not associated with success in ERP implementation (Sarker and Lee 2003).

Barreto, Barros et al. (2008) outline a skills, capabilities and experience approach to staffing a project team, and highlight the importance of two key criteria; education and experience. The use of skilled professionals in project teams allows for finer granulation of detailed work to be carried out. Skilled professionals need to be selected so as to get the best performance in a project team; trailblazers should be identified from key areas and transferred for the best results (Ellram, Tate et al. 2007). Internally recruited project members benefit from having a deeper understanding of the organisation and have more relevant departmental experience. However, externally recruited members bring with them new ideas gained from previous implementations. The internally selected team members should be from affected departments, ideally in a secondment position for the duration of the implementation (Woo 2007).

ERP project team members should have interpersonal skills and be well equipped to undertake intensive communication and collaboration between stakeholders with strongly opposing views (Akkermans and Van Helden 2002). In addition, Soh, Kien et al. (2000) cited

the need for the ERP project team members to possess the necessary skills to probe for details when conducting the planning phase of the implementation and as such should be, to some extent, visionary. It has been suggested that "ERP project managers should be able to assess the fit between their organization and the ERP system" (Wang, Lin et al. 2007 p210) and the people involved in the implementation are critical for knowledge transfer activities to be achieved. This research showed that organisations with higher levels of capacity and competence showed greater success in adapting new organisational processes.

To avoid ERP write-offs individual members of the project team should be selected on the basis of the best performer and should have a background of accomplishments (Cliffe, Champion et al. 1999). The importance of selecting the correct individual members for project teams has been stressed by Newell, Tansley et al. (2004) who suggest that they need to have interpersonal skills. It has been suggested that selecting a strong project leader is critical (Woo 2007), however, in contrast to this view Soja (2006) suggests that the project lead does not have any influence on success. Tackling organisational issues in ERP implementations is the role of management within the project team, by the use of power, interest and rights based authority (Ward, Hemmingway et al. 2005).

Teamwork is essential in any project team and Cross, Ehrlich et al. (2008) advocate networks as a team ethos as this facilitates leadership qualities. These authors recommend selecting people with social skills to participate. Integrated teams have a propensity to bridge external boundaries and foster team bonding among fellow members, developing a sense of common ownership (Adler and Kwon 2002). Insight teams are an effective way to achieve team diversity and these cross-functional teams bring together professionals with diverse ideologies to harness many information resources (Fleisher, Wright et al. 2008). Adoption of a teamwork ethos is an important aspect in any change management programme (Martinez-Sánchez, Pérez-Pérez et al. 2008). Top management team diversity in relation to their education and functional background can bring about increased innovation (Naranjo-Gil 2009).

Getting a team together is one key aspect, keeping them together is an entirely different issue. Newell, Tansley et al. (2004) identified this as a grave weakness through the high occurrence of project team member replacements. In describing the nature of social capital, Coleman (1988) notes that bonding among team members enhances the propensity for knowledge sharing and the collective relations between a defined group are encouraged through this close networking. Understanding the importance of social capital is important as bonding with external stakeholders has been shown to improve interdepartmental relations (Adler and

Kwon 2002). It has been suggested that "effort put into team building during the early stages of the project would therefore appear to be essential for effective knowledge integration" (Newell, Tansley et al. 2004p 56).

Identifying the desired benefits

Identifying the desired CRM benefits and ensuring process changes are made is essential for a successful ERPII implementation. The task of defining new processes and assigning new job specifications must begin by gaining a good understanding the views of the end user (Shepherd, Clegg et al. 2009). One important model was created by Aladwani (2001) which assists in ensuring implemented strategies realise their intended benefits (Table 10).

Table 10: Defining New Processes

Phase 1	**An awareness phase** To align benefit with approach.
Phase 2	**A feeling phase** To prepare ways to negotiate resistance and an adoption phase, this identifies the benefits
Phase 3	**The chosen strategic phase** An approach which sets out a clear strategic pathway.

- Phase 1: raising awareness of the new processes is the first phase in their introduction. A theory based approach may be taken to identify the benefits and formally define where they are expected to arise. If BR is driven by theories discussed in literature, more appropriate processes can be written into the implementation software (Carroll and Swatman 2000). In contrast, a value stream-mapping approach can be used which tackles BR issues at the very early stages of the implementation (Lasa, Laburu et al. 2008). This approach evaluates the organisation and maps for BR opportunities, as opposed to happening across them.

- Phase two: negotiations around the formulated new processes constitute phase two. Here Arinze and Anandarajan (2003) suggest that if job mapping is introduced in the process mapping phase, an ERP configuration can be completed considerably sooner. It has also been suggested that "by thoroughly mapping the job a customer is trying to get done, a company can discover opportunities for breakthrough products and services" (Bettencourt and Ulwick 2008 p109). This research also suggests that job mapping should include the following seven steps (Table 11):

Table 11: Job Mapping Steps

Step 1	Understand the requirements of getting the job done (e.g. defining objectives and planning resources).
Step 2	Identify inputs required to perform the job (e.g. coding and logistics).
Step 3	Lay the foundations so the job can be done (e.g. taking preparatory steps and pre-examining integrated data).
Step 4	Verify the job completion requirements (e.g. assessing the risks).
Step 5	Execute the job (e.g. testing archiving systems and acquiring real-time feedback).
Step 6	Monitoring for success and failure of customer interaction.
Step 7	Modifying the environment based on feedback, and concluding the job with sign-off from vendor to the client organisation.

- Phase three: new processes are defined during phase three. This can be achieved relatively easily, if an appropriate mechanism is in place to outline the benefits desired, and if job mapping has been undertaken to take account of end-user concerns. Setting a clear strategic pathway is important in defining new processes (Ward and Peppard 2002; Landrum and Gardner 2005; Presley 2006).

Identifying stakeholder involvement

Many stakeholders are involved in an ERPII implementation, and at a corporate level there are three key stakeholders: the Client, the supplier and the service contract provider. In delivering an organisational structure that is process driven, it is important to identify stakeholder involvements. Both internal and external stakeholders may be affected in accommodating to the new system processes. Naranjo-Gil (2009) provided empirical evidence that if the system is open to a wider diverse audience, particularly top management teams, decision making can be knowledge driven and as such become more insightful.

Organisational restructuring is often a necessity during an ERPII implementation and Powell (2002) proposed that a process driven organisational structure which seamlessly integrates all of the functions of the organisation can develop new and improved customer relations. In an investigation on organisational structure, Wieder, Booth et al. (2007) found that ERP only offered organisations long-term benefits if they were accompanied by simultaneous BPR of supply chain processes. Unnecessary processes previously used by stakeholders can be obliterated (Hammer 1990) where possible to create competitive advantage.

Reshaping the organisational structure to better align their business processes is a long-term task, and it often results in resistance to change from different stakeholder groups. Finney and Corbett (2007) identify that little research covers the stakeholder perspective in ERP implementations. In addition, it has been noted that "there has been little research exploring

how ES [enterprise system] managers' style of communicating with stakeholders and managing conflicts between stakeholders' interests contribute to the success or failure of ES implementation" (Ward, Hemmingway et al. 2005 p99).

Managing relations with stakeholders is an important issue and Ku, Wensley et al. (2008) highlight that poor stakeholder communications is often a limiting factor in vendor/client relations for KM relationships, observing that inaccuracy and discrepancy of information is a factor that leads to this poor communication. The occurrence of interoperability found to exist in extended enterprise project teams can be the result of different uses of vocabulary. The confusion of terms has created barriers to interdepartmental and inter-organisational communications (Lin, Harding et al. 2004).

Markus, Axline et al. (2000) noted that there are differences in attitudes towards the definition of success amongst stakeholders within ERP implementations. In addition, management and system users do not share the same coherent vision towards ERP, with management often perceiving it to hold more competitive advantage than the users (Lim, Pan et al. 2005). Kim, Lee et al. (2005) identified that conflict between functional departments and inadequate staff commitment from affected departments are the greatest impediments towards ERP success.

Undertaking the design and finance blueprint

One of the first tasks involved in any ERP implementation is the establishment of the organisational process blueprint to ensure that changes are fully understood by all stakeholders. Bandara, Gable et al. (2005) suggest that initially business process modelling is required, and this must be given a great deal of attention along with keeping clarity to reduce system complexity. The blueprint process involves mapping out the boundaries and limitations of the software.

When producing blueprints for ERP implementations, it is important to prepare very specific details of the vision of the changes and this falls into two parts; the strategic vision and the detailed schematic of how this will work (McAdam and Galloway 2005). Mandal and Gunasekaran (2003) suggest three key strategic steps to designing the blueprint process: a pre-implementation strategy, an implementation strategy and a post-implementation strategy. Bozarth (2006) highlights that this can take one of two approaches: either the ERP system aligns with the organisation's current business strategy, or the organisation fits the ERP driven processes.

Organisations that undertake business process changes have been found to deliver successes where ERP has been implemented (Law and Ngai 2007). However, not all processes contribute towards achieving the organisational strategy and those processes which contribute towards BR must be categorised so that they may be identified more easily. Edwards and Peppard (1997) developed a process triangle model to help categorise these processes. This research highlights that key processes include: competitive processes, underpinning processes, qualifying processes (unique to specific tasks) and transformation processes (those required to facilitate future capabilities).

Traditional ERP implementations "have focused on the "back-office" i.e. all those areas in the supply chain that were not customer facing (e.g. purchasing, payroll, warehousing, etc.)" (Siragher 1999p11). Front-end mapping is therefore an important aspect of process mapping and needs to be integrated into the implementation if front-end departments are to exploit the full benefits of this technology. Bettencourt and Ulwick (2008) approach front-end mapping from a customer-centric model suggesting that in order to foster innovation it is important to undertake "job mapping" which breaks down the tasks customers want doing into a series of steps enabling organisations to plan accordingly. One important step is that "by thoroughly mapping the job a customer is trying to get done, a company can discover opportunities for breakthrough products and services" (Bettencourt and Ulwick 2008 p109).

Establishing the strategic road map

An overriding process related issue in ERPII implementation is establishing the strategic roadmap as this ensures the new benefits are realised. Although ERP is a global phenomenon, approaches to implementations vary and there are three approaches to the design of the system (Table 12).

Table 12: Three Approaches to ERP Implementation

APPROACH	DESCRIPTION
Big bang approach	Quick implementation of the whole system.
Middle-of-the-road approach	Gradual upgrades to the system package.
Vanilla approach	Undertaking smaller projects and re-engineering processes to fit the ERP/ERPII software.

A study of the Asian pacific shows that a big bang philosophy is more widely accepted than in western cultures; implementations in this region were relatively shorter and less expensive than in North America or Western Europe (Katerattanakul, Hong et al. 2006). In contrast, an investigation of six in-depth studies in Greece highlighted that a vanilla approach was the most appropriate, on account of a lack of skilled workers in the region and the inherent cultural perspectives to the work ethic, both of which drove organisational implementation practices (Koh, Simpson et al. 2006).

Technology roadmaps are important and Lee, Kang et al (2008) identify them as being an essential tool in delivering the right project at the right time. Newell, Tansley et al. (2004) suggest that senior managers in ERP implementations need to map 'as is' and 'to be' as mapping of existing and new processes. Newkirk, Lederer et al. (2008) identify that the more radical the business change, the longer the planning horizon required. This finding is also highlighted by the Editor-in-Chief of European Journal of Information Systems (Baskerville 2008) who suggests that fast paced business change requires longer planning horizons. The rapid configuration approach to ERP has been heralded as a quick solution to a difficult problem (Arinze and Anandarajan 2003). These authors suggest that by modelling organisational structure and processes, problems can be solved.

In operationalising the strategic roadmap, Ward, Hemmingway et al. (2005) suggest that during an ERP implementation initiating a charter and project stage is an important aspect, proposing that senior management should be involved in the charter stage whilst middle management should be mostly involved in the project stage. Presley (2006) developed a strategic alignment model for ERP implementations, proposing four elements: business strategy, IT strategy, organisational infrastructure/processes and IT infrastructure/processes. This author suggests that these should be aligned in the early stages of the implementation design to deliver the best results.

2.2.3 An introduction to the area of 'Technology'

The resource investments involved in the implementation of ERP have been evaluated in the context of the three resource based areas of people, process and technology. Each has been reviewed separately and key issues cited in literature have been identified. The resource based area evaluation described here is in relation to 'technology'.

Techno-change management

One important 'technology' related concept of ERPII is the phenomenon of organisations turning to IT to initiate the changes necessary in order for BR to occur and this has been termed technochange management for "technology-driven organizational change" (Markus 2004 p4), in which "deliberate technochange is the use of IT to drive improvements in organisational performance" (Markus 2004 p19). Typical IT projects differ from technochange management in that they only involve the provision of appropriate hardware and software support, whilst technochange management involves the design of a technically orientated process evolution (Markus 2004).

IT has the potential to create competitive advantage since newly established electronic systems change the way organisations compete (McFarlan 1984). Indeed, there is little doubt that IT software solutions have the potential to lead competitive advantage (Ives and Learmonth 1984; McFarlan 1984; Cash and Konsynski 1985). However, sustaining this competitive advantage is more of a challenge (Clemons and Row 1991; Atkins 1998), particularly as rival systems are often developed (Clemons and Row 1991).

IT enabled strategy can lead to competitive advantage which has been shown to require managerial IT skills within the organisation, whilst technical IT skills, or the IT infrastructure, are not contributing factors (Dehning and Stratopoulos 2003). There is a positive relationship between IT driven organisational change and business performance capabilities and it has been suggested that it is the responsibility of business managers to seek out and create firm-wide IT capabilities (Bharadwaj 2000). Research regarding US local government identifies that public agencies are often at a disadvantage to the private sector concerning IT support, both in regards to IT professionals and IT upgrades (Vélez-Rivera, Dias et al. 2004).

ERPII systems use stored records to develop extended enterprise opportunities and during the implementation each organisation has to ensure that the new system has the capability to capture and store information, integrating knowledge with technology. This TM activity requires a clear procedure to ensure the accurate transfer of information from legacy databases and from employee working practices. Vast amounts of information are collected from many sources, such as invoice receipts, dispatch details, contact details, work time motion studies etc., all of which are recorded over a long period of time. Organising and categorising this information is important during the implementation and must be addressed when ensuring the vendor passes on their expertise to deliver a successful implementation. It is important the client can use the system to support the needs of the customer by collecting the right information.

Creating organisational knowledge begins with capturing the experiences and ideas of individual employees and this is a process which must be managed (Nonaka 1994). The concept of adopting new ideas and reforming old ones has been researched by Hassell (2007), who suggests that knowledge is not just organised or categorised information, it is far more than this, it is the ability to recognise complex patterns in piles of data.

Knowledge is classified into two types: explicit knowledge (factual) and tacit knowledge (experience). The former is information which can be easily categorised and has semblance with similar information types. Paswan and Wittmann (2009) identified that this explicit knowledge can be easily codified and as such can be easily transferable and shared. The latter resides in the experience and instincts of staff members and these are more difficult to document and share (Nonaka 1994). Unfortunately, Gupta and Govindarajan (2000) suggest that tacit knowledge plays a crucial role in the effectiveness of a KM system and that staff must be incentivised to release this. Organisations can invest in group based sharing activities to foster this. Saffo (2007) further highlights the acute nature of tacit knowledge residing within individuals who make forecasting decisions, describing the difficulties in capturing this information, which suggests that organisations face the difficult task of passing this information to system developers.

Heffner and Sharif (2008) suggest that tacit knowledge can be converted into explicit knowledge through a socially orientated process which involves reflecting, reviewing, resolving and renewing ideas. Organisations implementing an ERP must integrate (tacit) knowledge held internally by employees and externally through the experience of consultants, if benefits are to be realised (Chang, Hwang et al. 2007).

Converting information into knowledge that can be used in a decision making capacity, is a relatively new phenomenon which is based on a concept of organisational memory, and defined as the "stored information from an organisation's history that can be brought to bear on present decisions" (Walsh and Ungson 1991 p.61). ERP systems can be the technology solutions used for converting information into knowledge. Qualified people undertaking functional roles are involved in capturing specialist knowledge (Earl 2001). This involves capturing transactional data, coding information, categorising information, and enabling shared access to information for the facilitation of decision making purposes.

The management of technical knowledge for the integration of an ERP selection requires an important selection process, and one important example is highlighted by Deep, Guttridge et al. (2008) who found that this included "a realistic estimate of what the value-adding processes are" (p443). New processes can be driven from ERP; Lee and Lee (2000) undertook empirical research in one large public organisation in the USA and highlight that knowledge transfer involves internalising the processes (redefining roles and responsibilities) along with cross-functional training to embed them.

Srivardhana and Pawlowski (2007) reviewed current literature to reveal that the foundation of ERP has the potential to significantly enhance the knowledge capabilities within an organisation. However, these authors also identify that there is an over emphasis on structural constraints (investing too many resources into technology related issues), which may be a restraining factor in BR by restricting other innovative possibilities in other areas.

In terms of technochange management for ERPII, Møller (2005) identified four key components which are outlined in table 13.

Table 13: The Four Components of Developing ERPII

The Core Component	The IT architecture.
The Central Component	The newly established processes.
The Corporate Component	The analytic components.
The Collaborative Component	The inter- and intra-service provisions.

Stakeholder Relationships

A second important 'technology' related aspect of ERPII is the necessity for the client organisation to form close relations with third party supplier organisations. One of the most important stakeholder relations is with the supplier of the software solution. There are many vendor types, ranging from the market leaders (e.g. SAP and Oracle) who provide general templates which are adapted to specific industry requirements, or specialist providers who can design a solution to the needs of the organisation. Selecting the most appropriate vendor is an important issue which can determine the outcome of any implementation. Differences between vendor packages have resulted in "glitches", which are difficult to find and are a big concern (Boudette 1999). Chiasson and Green (2007) outline that vendors achieve a balance between generality of the client's needs and specificity of the software by designing for specific user practices.

To support the system, the client must have some form of on-going system maintenance which can be delivered either through their own internal IT department or outsourced via an application service provider (ASP). If the client organisation wishes to outsource the service maintenance aspect of their ERPII system it is necessary to form a close relationship with an ASP. Walden and Hoffman (2007) suggest that outsourcing offers advantages when the implementing organisation selects partners that have a complementary structure. ASPs can supply the architecture necessary and have the experience to efficiently manage the technical integration. With their expertise, they are able to manage and support the users of the system and serve the needs of the organisation acting in an outsourcing capacity. ASPs can provide a cost-effective solution to maintaining an ERP system (Ekanayaka, Currie et al. 2002) and allow for significant cost savings during an ERP implementation (Olson 2007). However, disadvantages in outsourcing to an ASP have been suggested (Trimi, Lee et al. 2005) such as vital organisational information being placed in the hands of a third party organisation. Miertschin, Sumrall et al. (2006) suggest that internal IT departments are shrinking as the tendency to outsource has increased in mid to large organisations. These authors suggest that there will be a migration of highly skilled IT professionals integrating into more business and process related fields of the organisation.

2.2.3.1 Key 'Technology' related issues for CFOs implementing ERPII

Building upon the key concepts involved in ERPII implementations, it is possible to filter key specific issues. In regards to technology related activities within CFOs, the following issues have been identified are discussed below:

Selecting the right vendor

In terms of aligning the knowledge capabilities of the organisation with the ERPII system, one key issue is vendor selection. An important bridge must be formed between the client needs and the software capabilities. Peppard and Ward (2005) cite vendor selection as being one of the key issues facing organisations implementing ERP to develop CRM practices and outline a few variables to consider as part of the selection process (Table 14).

Table 14: Variables to Consider for Vendor Selection

Variable 1	Vendor experience.
Variable 2	Type and competency.
Variable 3	The more practical issues of contract negotiations.
Variable 4	Working partnerships.

Vendor selection is one of the most important decisions when adopting an ERPII system and several technical issues must be evaluated beforehand, such as ensuring the provider has relevant experience in their industry sector (Variable 1). Weeks and Feeny (2008) identified that selecting an appropriate vendor with relevant industry experience is key but stress that the client's own ability to facilitate innovation and the level of trust with the outsourced organisation are contributing factors also. Replacement know how is a good indicator of this, "when a vendor's business is 80-90% system replacements, they have learned what it takes to make a smooth and flawless transition" (Pal 2008 p.2).

Research has shown that in order to develop new core IS capabilities, the IT architecture, vision and delivery of services must be aligned (Feeny and Willcocks 1998) and this depends upon the type and competency of the vendor (Variable 2). ERPII is a piece of software that can offer many capabilities and an important step is to determine which values are most desired. Ziaee, Fathian et al. (2006) propose a two-phase approach to ERP vendor selection, whereby the initial stage involves the formulation of a project team lead, whilst the second stage is the selection of the best vendor and deciding upon the required modules.

Arinze and Anandarajan (2003) suggest that the key is to detail specific needs of high-level user requirements and formulate these into the "internal representation" of the user interface using check boxes, pull down menus, and list boxes for ease of use. In addition, these systems must be available to all front-end system facilitators as Ranganathan and Brown (2006) confirmed that the highest returns were achieved from ERP implementations utilising greater functional and physical scope.

Needless to say, there will be many perspectives held within an organisation, and it is important to prepare contractual agreements before the implementation begins (Variable 3). When considering outsourcing IS, Saunders, Gebert et al (1997) note that the contract is key, particularly for the customer who is looking to guarantee performance outcome. By stating desired performance indicators, the power in the relationship can be effectively managed.

Wang, Lin et al. (2007) identified a positive relationship between knowledge transfer and having a competent vendor selection team. In a survey of 486 organisations implementing ERP, Elbertsen, Benders et al. (2006) highlighted that the IT competence of the selection team is a significant factor in the result of the implementation. These authors highlighted that less IT literate project team members selected more modules. In these cases there was a strong correlation with the ERP sellers' marketing efforts influencing decisions made. In selecting the best, most appropriate, ERP system, an integrated decision making process has been found to be most effective (Karsak and Özogul 2009). Yazgan, Boran et al. (2009) also identified that in the selection of vendors, project team decision as opposed to unilateral decision is better. This offered a greater scope of requirements to be introduced into the decision making process.

Delivering the desired outcomes in CFOs may not be an easy task and this will only be achieved by forming a good working partnership (Variable 4). Vendors also face risks as there is the "potential damage to their own firm's reputation if the customer is dissatisfied with either the outcome or the process of the project" (Taylor 2005 p.149).

Beatty and Williams (2006) note that ERPII has become a push-pull decision; organisations pushing to derive even further return on investment, and vendor pull whereby vendors are strongly persuading organisations that the time is right to upgrade. These authors identify eight most common recommendations which are listed in table 15.

Table 15: ERPII Upgrade Recommendations

Recommendation 1	Ensure new functionality.
Recommendation 2	Treat the upgrade like a new project.
Recommendation 3	Utilise the same implementation team.
Recommendation 4	Remember that it is a business project, not an IT project.
Recommendation 5	Manage infrastructure costs.
Recommendation 6	Un-customise the solution.
Recommendation 7	Test religiously.
Recommendation 8	Do not skimp on training.

Portal integration

One important issue relating to the integration of knowledge with technology is portal integration. This is important to achieving a user-friendly interface for the end-users which enables the appropriate features to be available to the appropriate end user.

Portals offer many advantages including offering organisations with the potential of higher return on investment, structured access to enterprise information and finally offering both a common and personalised view of the shared information available (Dias 2001). Detlor (2000) outline a three-phase model of portal implementation (Table 16), describing that the external provision of corporate portals can assist in promoting information access and use.

Table 16: Model of Portal Integration

Phase 1	The information environment of the organisation.
Phase 2	The standard practices of the users.
Phase 3	The desired value adding services to be delivered.

- Phase one: technical staff are identified and selected during phase one. Government organisations have improved their knowledge sharing technologies by identifying and selecting technical staff in the implementation process, enabling these individuals to integrate and customise the technology in line with the needs of the organisation (Hedgebeth 2007). End users should be involved in the design of projects and "they should be encouraged to 'pull' these systems into the business, rather than managers 'pushing' them onto the user community" (Shepherd, Clegg et al. 2009 p97). Customisation of ERP packages during the implementation is a major cause of problems, a survey of 42 organisations which showed that integrating multiple legacy databases with the ERP system causes the most serious problems (Themistocleous, Irani et al. 2001).

- Phase two: front-end mapping should be carried out during phase two. For CFOs, front-end mapping requires a process of ensuring that all information passed to the client organisation from its individual customers has a means of being input and processed. In addition, it should be ensured that the system has account storage to facilitate ease of use for individual customers accessing their accounts on-line. Okrent and Vokurka (2004) outline six key business processes that require mapping during an ERP implementation: quote to cash, procure to pay, manufacturing operations, product life-cycle, plan to perform and financial management. These authors advocate an "as is" "to be" approach for each.

- Phase three: processes should be aligned with technology during phase three. Mismatches that exist between the ERPII system and the organisation arise from the following: business practices, organisational structure issues, alignment (technical isomorphism) and customisations (Kumar and Van Hillegersberg 2000). In delivering the desired value adding services, technical isomorphism has been shown to be an important problem. This occurs where the system requirements differ from the organisational desires (Batenburg, Benders et al. 2008).

Portals are integral in delivering the CFA of ERPII. A framework regarding information communication technology for exploitation of e-participation for local government has been proposed by Phang and Kankanhalli (2008) and includes four stages which are outlined in table 17.

Table 17: Stages of e-Participation Exploitation

Stage 1	Information exchange (drop-in centres to evaluate policy options).
Stage 2	Education and support building (citizen advisory committees to assist with implementing the policy).
Stage 3	Decision making (value analysis to formulate the policies).
Stage 4	Input probing (citizen surveys to set the agenda).

- Stages one and two: these both ensure that portal integration is based upon the needs of the community. Here Butler and Murphy (2007) suggest that the conservative design of IT for KM systems has been an inhibitory factor for the realisation of many knowledge based system tools, with too much focus on simple searchable document repositories for supporting the digital capture, storage, retrieval, and distribution of information.

- Stages three and four: these both ensure the ideas generated are fully realised. In terms of portal integration itself, if the internal network of an organisation can be mapped, then not only can documents be shared, but insights and ideas can be as well (Whelan 2007).

Knowledge and content management

To ensure the raw data is integrated into the new system in a usable format and can be easily manipulated to deliver information on demand, knowledge and content management is required.

The task of managing knowledge is particularly complex and successful organisations should therefore look to improve KM capabilities and show willingness to share data by process changes. Cohen and Levinthai (1990) define absorptive capacity as an activity where firms recognise the value of new knowledge from external sources, understand this knowledge and apply it to commercial ends. The management of organisational knowledge can only be effectively undertaken with knowledge sharing technologies such as ERPII which improves absorptive capacity (Vandaie 2008). There are extensive accounts of failure in progressing the KM frontier of software expertise and Gosain (2007) identified that one serious inhibitor is the complexity of knowledge retrieval requirements of users.

Kao and Decou (2003 p.238) propose an idea of undertaking a strategic appraisal of e-commerce initiatives prior to implementation, stating that "poor planning is one of the reasons for the inferior results of some e-commerce ventures". Heffner and Sharif (2008) suggest that knowledge fusion is a process of technological innovation and involves the integration of four processes (Table 18).

Table 18: Technological Innovation Processes

Technoware	The tools required to perform the tasks.
Humanware	The talents required to perform the tasks.
Infoware	The facts of the technological innovation.
Organware	The methods used to integrate the elements.

When developing technoware for knowledge fusion, systems are being put in place to facilitate the management of the information from legacy databases. Investing in KM practices helps an organisation to understand the knowledge categories within its structure and leads to the possible development of unique applications of them (Lehtimäki, Simula et al. 2009). Technoware enables a clear mapping of organisational capabilities and customer needs. This is

particularly important for knowledge transfer from suppliers during an implementation and can be improved by introducing reference site visits.

In regards to the humanware, Grant (1996) identified the key role for management as being establishing the coordination for knowledge integration. ERP systems easily allow organisations to put in place processes to securely manage captured data (Maurizio, Girolami et al. 2007). In catering for knowledge workers, systems often require greater functional scope to enable system facilitators to fully optimise the knowledge base it has to offer. The role of the end user and the training they receive is critical in establishing social capital, since they have a crucial role in system development.

In regards to the infoware, Paswan and Wittmann (2009) identified that easy knowledge can be codified and shared. ERPII systems are designed to capture and use the information of customers, the former editor-in-chief of the European Journal of Information Systems commented that "I for one do not see how the study of IS can exist if it is totally unconnected to practical problems" (Paul 2007 p194).

In regards to the organware, establishing a set of best practices is an ideal way to facilitate the needs of the implementation process. The processing of information requires a four-set process of: information generation, dissemination, interpretation and memory (Huber 1991). In addition, Siragher (1999) suggests that sales, marketing and customer service departments must be incorporated in the mapping phase of an ERPII implementation.

System maintenance

The benefits of a KM system such as ERPII can only be realised through a continually serviced system which monitors all areas of data input and output. Many organisations manage their own ERP system, however, ASPs can be used if an organisation wishes to outsource the management of this system. It is important to determine whether the system will be maintained by the organisations' internal IT department or by an external agent. The decision of how to service the system must be decided at an early stage as making appropriations for either takes time. Deciding whether to use an ASP is an important aspect of the implementation process and this has attracted a great deal of research (Ekanayaka, Currie et al. 2002; Kakabadse, Kakabadse et al. 2004; Trimi, Lee et al. 2005; Olson 2007).

In a review of recent literature of organisations implementing ERP systems (Trimi, Lee et al. 2005), the major advantages for organisations to appoint ASP have been outlined as being: faster implementation time, cost effectiveness, lower technical risks and vendor technology. However, there are disadvantages and these were identified as being: the organisation will be tied into a long-term relationship with the ASP and as such, is at the mercy of its fortunes, upgrades and customisations are dependent upon the ASP, and the data and applications are in the hands of the ASP which the client organisation has a low possibility of controlling. As such, the changing needs of the customer with the ASP organisation are highly vulnerable.

Kumar and Van Hillegersberg (2000) were one of the first authors to discuss the concept of extended enterprise for ERP to interact with customers, noting the benefits of using an outside organisation for supplying and maintaining the technical architecture. Any organisation looking to achieve innovation and business value through outsourcing IT investments have to consider which partner to use. Olson (2007) suggests that significant cost savings can be made by outsourcing to an ASP during ERP implementation, but paradoxically, their research showed that this cost advantage is outweighed by the poor performance in regards to customer service delivered by the ASP.

Successfully achieving IT outsourcing does require careful management (Koh, Ang et al. 2004) and Kakabadse, Kakabadse et al. (2004) explain that client organisations must be explicit about the requirements before entering into negotiations with ASPs, if they are not to lose out. The question of whether outsourcing is compatible with innovation has been asked by Weeks and Feeny (2008), who suggest that it is compatible if the innovation results were not readily available before. Customer service and maintenance have been shown to be the main drivers for selecting an ASP (Lee, Lee et al. 2007).

The failure to deliver business value from ASP has been described: "A critical weakness of these approached is that they assume that the user is the consumer of IT services" (Peppard 2007 p338), and only a well-integrated IT support unit will deliver this value. The onus is on the ASP and Ekanayaka, Currie et al. (2002) suggest that an important task is for the ASP to evaluate the capability of the organisation implementing ERP prior to forming contractual obligations. ASPs are often appointed on a service level agreement basis which are notoriously difficult for measuring their performance (Ellram, Tate et al. 2007).

Project governance

An overriding technology related issue in ERPII implementation is to ensure the technical aspect of the implementation is delivered on time and within budget. Corporate governance is extremely important in any project implementation, since it keeps the project on track, and is also an invaluable tool by which organisations can manage risk and make last minute changes to project objectives. Only through establishing project governance can a technical implementation as complex as an ERPII implementation be managed. It has been suggested that "Governance reflects the leadership and organizational structures and processes that ensure IT sustains and extends the organization's strategies and objectives" (Raghupathi 2007 p96). Raghupathi (2007) also suggests that the use of corporate governance introduces transparency and accountability which is particularly important in public sector dealings.

Deciding on the management structure governing the integration of the portal during ERP implementation is important. Muscatello, Small et al. (2003) identified that implementations require 'needs assessment' which include: planning, justification and installation practices. Since technical-isomorphism is a particular problem in ERPII implementations, steering groups are essential as they form a corridor along which the implementation must not deviate to re-align the two areas of technology and process (Batenburg, Benders et al. 2008).

Centralised and formal steering groups have been found to offer greatest benefits for SME implementing IT initiatives. In addition, the more senior the members, the more inclined the project is to exceed the implementation time by having the project adopt broader and longer term issues (Huang, Zmund et al. 2010). For CFOs implementing ERP "the project needs to be owned and led by senior end users" (Clegg and Shepherd 2007 p220) if the full benefits are to be realised, as only these members of staff will know the full requirements needed to deal with problems and as such, be in a position to select the right people to tackle the necessary tasks. Dong, Neufeld et al. (2009) show that top management of ERP implementations positively influences success.

2.2.4 Summary of resourced based evaluation

Within each resource based area evaluated, key concepts have been identified in literature; this has facilitated the formulation of key issues facing CFOs implementing ERPII within each of the resource based areas of investment. This review of the literature has helped to provide a clear understanding of current beliefs and best practice in the industry.

Within the area of people

In reviewing the literature regarding people related issues, two key concepts have emerged which are integrating CFA and managing HR. From these, five issues have been identified which concern CFOs implementing ERPII which have been outlined in table Table 19:

Table 19: Resource Issues Relating to People

ISSUES
• Managing change within CFOs implementing ERPII. • Establishing a training strategy. • Quantifying, delivering and evaluating the training. • Identifying and providing end-user support. • Preparing corporate communications.

Literature has shown that regarding managing change, there are two types of change: planned and emergency. Furthermore it has been found that organisational issues are the most difficult to manage. Establishing a training strategy has been shown in literature to involve a four-phase approach: the implementation phase, the formal training phase, the post-training phase and the formative appraisal phase. It has also been found that introducing a 'self-identity' philosophy assists with user acceptance. Literature has shown that for quantifying, delivering and evaluating the training, a training performance pathway is required which is based upon a training needs analysis. For providing end-user support, literature has shown that a network of transition champions and super users is required. The support provided must be evaluated against its immediate and long-term implications. Regarding corporate communications literature has revealed that the right information must be released to the right audience at the right time. Organisational communications must address the needs of the end user and an appropriate climate for change must be created. Lack of efficient communication has been shown to be a cause of failure.

Within the area of process

In reviewing the literature regarding process related issues, two key concepts have emerged which are integrating BPR and CRM. From these, five issues have been identified which concern CFOs implementing ERPII which have been outlined in table Table 20:

Table 20: Resource Issues Relating to Process

ISSUES
• Formation of the project team. • Identifying the desired benefits. • Identifying stakeholder involvement. • Undertaking the design & finance blueprint. • Establishing the strategic road map.

Literature has revealed that the formation of the project team is critical to the success of the implementation; it should comprise of the best and the brightest people. It is important to ensure team members have interpersonal skills as well as technical skills. The identification of stakeholder involvement has been revealed in the literature as important; who all the stakeholders are and their perspectives should be understood. Internal stakeholders are faced with the challenges of new processes whilst external stakeholders are faced with the challenges of inaccuracy and discrepancy of information. Literature shows the importance of identifying the desired benefits and that a formative knowledge approach is an important pre-implementation step. In addition a theory based approach enables benefits to be realised early during the implementation. Undertaking an organisational design and finance blueprint has been revealed in literature as one of the first tasks of any implementation. In order to realise the benefits front-end mapping is required to facilitate a time and budget saving exercise. Literature has shown that a strategic road map should be established. Both a technical and BR road map are required and ensure the organisation of data architecture is correct. There are three approaches; a short planning 'big bang' approach, a middle-of-the-road approach and a long planning 'vanilla' approach.

Within the area of technology

In reviewing the literature regarding process related issues, two key concepts have emerged which are techno-change management (TM) and stakeholder relationships. From these, five issues have been identified which concern CFOs implementing ERPII which have been outlined in table Table 21:

Table 21: Resource Issues Relating to Technology

ISSUES
• Vendor selection. • Portal integration. • Knowledge and content management. • System maintenance. • Project governance.

Literature has shown that vendor selection is a key issue. There must be a balance between the generality of clients' needs and the specificity of the software offered. A vendor selection team should be appointed so as to incorporate the vision of the organisation. Portal integration has been shown in literature to involve a three-phase portal integration system that first looks at the information environment of the organisation, then the standard practices of the users and finally the desired value adding services. End users should be involved in pulling the benefits into the system. Knowledge and content management has been discussed in literature; knowledge sharing technologies like ERPII have absorptive capacity which must be well managed. Knowledge fusion is required which consists of four parts: tools, talents, facts and methods. Literature discusses that system maintenance can be undertaken in-house or outsourced. Regarding the latter, ASPs offer significant cost advantages but the client's operational information is exposed to this third party organisation. Regarding project governance, literature has revealed that steering groups are essential since they provide leadership, guidance, transparency and accountability.

2.2.4.1 The need for CSF analysis

In conclusion, the literature review to this point has looked to a wide spectrum of literature sources from across the eclectic IS bodies of research. This has led to a clear understanding of key resource based issues involved in ERPII implementations and outlined their many approaches to application. However, in addition to this, there is a body of research specifically for ERP, the predecessor of ERPII, which subscribes to the identification of CSFs, highlighting individual variables and testing these against the success or failure of implementation. These publications also need to be evaluated, firstly to ensure key issues have not been overlooked in the evaluation of ERPII implementations in CFOs and also to compare findings derived from the empirical research in this study against the currently existing CSF for ERP in literature. This evaluation against the empirical findings will highlight any areas where resource investments can be improved for this specific type of implementation.

2.3 An evaluation of currently understood CSFs for ERP

This section of the literature review evaluates currently identified CSFs for ERP implementations; it evaluates historical rankings of them and provides a detailed evaluation of each of the leading CSFs.

For a full understanding of currently understood CSFs for ERP, it is essential to have a clear definition of success within the context of ERP implementations. An empirical study involving organisations with prior experience of these implementations found that business and IT managers all use the same measures for evaluating system success (Ifinedo 2007). In total six factors were identified and were used as the basis for defining 'success' in the current research (Table 22).

Table 22: Definition of System Success

Factor 1	Vendor/consultant quality (trustworthy/provides quality training).
Factor 2	System quality (ease of use/easy to learn).
Factor 3	Information quality (understandable/relevant).
Factor 4	Individual impact (productivity).
Factor 5	Workgroup impact (participation/team).
Factor 6	Organisational impact (customer service/ satisfaction).

The key stakeholders involved in any implementation are: the vendor, the client and any third party contractors designated to support the software system. The six definitions of system success ultimately relates to how well the software is aligned in relation to serving the needs of the Client and its industry sector.

2.3.1 Critical success factor analysis

The investigation of CSFs is an approach designed to scientifically appraise successful implementations and identify factors which organisations should incorporate to avoid implementation failures (Nah, Lau et al. 2001; Verville and Bernadas 2005; Soja 2006; Woo 2007). The investigation of CSFs is a well-established approach in IS research. It is an approach designed to scientifically appraise successful outcomes and learn from them. One limitation of CSF analysis is that it overlooks the opportunity to learn from failure, however the benefits of learning from successful implementations makes this an invaluable tool in IS

research (Lyytinen and Mathiassen 1998). It can be used to clearly diagnose problems and provide lessons learnt for future implementations (Lyytinen and Robey 1999).

Achieving the goal of the implementation effort has been discussed in literature (Markus and Robey 1983), and refers to the validity of the accomplishment in terms of the fit between the system and the organisation's context of use. An important step in outlining CSFs in IS research is in understanding the level of importance of the contextual issues raised. In terms of delivering success, the basis of current academic understanding stems from Rockart (1979) who outlined that by identifying success factors, one can ensure that they receive the necessary attention from senior management. Subsequently, research in to CSFs moved towards evaluating 'winning' companies (Boynton and Zmud 1984). Williams and Ramaprasad (1996) set out a number of criteria to identify the criticality of "success factors". These are based on a known causal mechanism identified by a clear cause and effect relationship by an action taken, whereby the presence or absence of a variable leads to a successful outcome. CSF analysis or identification (Rockart 1979; Rockart and Flannery 1983) is now a standardised methodology for this type of research. Somers and Nelson (2001), and Finney and Corbett (2007) have both reviewed and ranked CSFs for ERP implementations over recent years.

Davis (1980) highlights some of the strongest criticism towards CSF research, suggesting that the identification of success factors relies heavily on the opinion of managers, and therefore introduces unduly positive feedback and the potential for a biased evaluation of the implementation. In addition, if researchers solely look at pre-published success factors as a basis for research, there is a danger of it becoming a self-fulfilling prophecy. This is why the current research compared findings with the literature and did not allow existing CSFs to lead the research.

2.3.2 Categorising and ranking currently existing CSFs for ERP

Two authors have categorised and ranked CSFs for ERP implementations over recent years (Somers and Nelson 2001; Finney and Corbett 2007). The results of these individual pieces of research are displayed in Figure 6. To identify like for like categories, similar categorisations from each piece of research have been colour matched for comparison and those areas with no direct match are not coloured matched.

Figure 6: Ranked ERP CSFs in Literature

Rank	Somers and Nelson (2001)	Rank	Finney and Corbett (2007)
1	Top management support	1	Top management commitment and support
2	Project team competence	2	Change management
3	Interdepartmental cooperation	3	BPR and software configuration
4	Clear goals and objectives	4	Training and job redesign
5	Project management	5	Project team: the best and the brightest
6	Interdepartmental communication	6	Implementation strategy and timeframe
7	Management of expectations	7	Consultant selection and relationship
8	Project champion	8	Visioning and planning
9	Vendor support	9	Balanced team
10	Careful package selection	10	Project champion
11	Data analysis and conversion	11	Communication plan
12	Dedicated resources	12	IT infrastructure
13	Steering committee	13	Managing cultural change
14	User training	14	Post-implementation evaluation
15	Education on new business processes	15	Selection of ERP
16	Business process re-engineering	16	Team morale and motivation
17	Minimal customisation	17	Vanilla ERP
18	Architecture choices	18	Project management
19	Change management	19	Troubleshooting/crisis management
20	Vendor partnership	20	Legacy system consideration
21	Vendor's tools	21	Data conversion and integrity
22	Use of consultants	22	System testing
		23	Client consultation
		24	Project cost planning and management
		25	Build a business case
		26	Empowered decision makers

The comparison shows that the two pieces of research differ considerably in regards to their ranking orders of the CSFs. The differences are highlighted clearly by the differences in colour matching of the ranked CSFs. In fact over half of the identified CSFs do not appear in both pieces of research, as denoted by the CSFs coloured grey. This may be due to the fact that these literature reviews were carried out at different periods of time, six years apart.

There are similarities in the two pieces of research, most notably top management support is consistently ranked as the No.1 CSF and project team competence consistently ranks in the top five CSFs. The remaining CSFs which consistently feature in the top ten are: clear goals and objectives, management of expectations, project champions and vendor support.

It can be seen that of those CSFs disappearing, i.e. not present in the evaluation carried out by Finney and Corbett (2007), relate specifically to where the supplier "calls the shots". These include: dedicated resources, architecture choices, minimal customisation, steering committee and education on new business processes. In addition, those CSFs which give the supplier

increased decision making abilities also disappear and include: vendor's tools and use of consultants. This would indicate that the Client is becoming more involved in the decisions that need to be made.

It can be seen that of those CSFs newly appearing, ie. not present in the evaluation carried out by Somers and Nelson (2001), relate specifically to where the client "calls the shots". These include: client consultation, build a business case, IT infrastructure, legacy system consideration, system testing and post-implementation evaluation. In addition, CSFs which involve overcoming organisational issues have appeared and include: managing cultural change, team moral and motivation, vanilla ERP, troubleshooting/crisis management, project cost planning and management, and empowered decision makers. This would indicate that the Client is increasingly trying to pull the benefits into the system.

Given the divergence of genres each author found, there is an indication that CSFs change over time. This evaluation also suggests that the ERP market is a rapidly changing one, with vendors changing their software solutions to meet the requirements of the current market demands. This is highlighted in the nature of those CSFs that were present in earlier piece of research but did not feature in the more recent review.

2.3.3 A review of the top ranked CSFs in literature

The following section is a review of the extant literature on currently existing CSFs and has been based on the 12 highest ranking CSFs. These have been selected from the top 22 CSFs outlined by Somers and Nelson (2001) and the top 26 CSFs outlined by Finney and Corbett (2007). In order to determine if a gap in literature exists concerning CSFs for ERPII implementation in CFOs, the research findings of this study needed to be compared and contrasted against this list.

Top management support

The widely acknowledged top ranked CSF for any ERP implementation is top management support and this has been widely cited in literature (Nah, Lau et al. 2001; Somers and Nelson 2001; Akkermans and Van Helden 2002; Brown and Vessey 2003; Woo 2007; King and Burgess 2008; Dong, Neufeld et al. 2009). Having a top down management philosophy has also been identified as being critical (Ward, Hemmingway et al. 2005). The exact level of 'support' required from top management has also attracted a great deal of empirical research. Research by Willcocks and Sykes (2000) specifically suggests that having a high level business

side sponsor is critical. The extent that top management buy into the goals of the overall project has been cited as being critical (Markus, Axline et al. 2000) and this eludes to the fact that a dedicated commitment is required from top management (Umble, Haft et al. 2003; Finney and Corbett 2007).

The types of support offered by top management extends widely, although the awareness of the role they play is critical (Law and Ngai 2007). Broadly these activities include offering their political persuasion, influential skills, providing financial budget assurances and other resources as required (Soja 2006; Sutanto, Kankanhalli et al. 2009). Strong and committed leadership at the top management level is required throughout the entire life-cycle of the ERP implementation (Sarker and Lee 2003). Furthermore, Yu (2005) identified that the commitment of the CEO must continue post-implementation for the implementation to be a success.

Project team competence

Project team competence has been cited as one of the top ranked CSFs in literature (Somers and Nelson 2001; King and Burgess 2008) and a critical aspect of this is the careful selection of acquisition team members (Verville and Bernadas 2005). The formulation of a great implementation team is critical (Umble, Haft et al. 2003) and one important issue in achieving this is evaluating the level of education of the project team members, as selecting the best and the brightest candidates has been found to be a critical factor (Finney and Corbett 2007). A second key aspect of the selection process lies in the level of skills and experience the candidates have.

Selection of the project team leader is particularly important and Brown and Vessey (2003) suggest that this person must be a veteran, whilst Verville and Bernadas (2005) outline that this person must be able to assert clear and unambiguous authority, for the implementation to be a success. When selecting project team members, it is critical to seconder members from affected departments to guarantee relevant experience is incorporated into the project team (Woo 2007) and seeking members with former implementation experience is also critical (Soja 2006).

Achieving a balanced team is critical (Finney and Corbett 2007) since the tasks the project team members perform are wide and varied, and often relate specifically to the duty of the specialist appointed. Some critical aspects noted in literature reveal that it is critical to ensure that there are project team members who are capable of: undertaking mapping exercises,

having technology fixing capabilities and undertaking cost management exercises (Willcocks and Sykes 2000; Themistocleous, Irani et al. 2001; Akkermans and Van Helden 2002). It is critical that project team members are decision makers (Brown and Vessey 2003). In conclusion, ensuring project team competence does not revolve around the individual, but ensuring the team is able to work together guarantees success (Nah, Lau et al. 2001), and as such the moral and motivational skills of the project team members is a critical factor (Finney and Corbett 2007). This must be tackled during the early stages of the implementation where the project team is being formed for the implementation to be a success (Newell, Tansley et al. 2004).

Change management

Change management has been widely cited as being an important CSF for ERP implementation (Nah, Lau et al. 2001; Somers and Nelson 2001; Brown and Vessey 2003; Umble, Haft et al. 2003; Finney and Corbett 2007). Some organisations often have to restructure to accommodate an ERP implementation and it is critical in these instances to tackle organisational change issues pre-implementation (McAdam and Galloway 2005). Critical aspects of this include developing a culture of accepting change (Markus, Axline et al. 2000), managing cultural change (Finney and Corbett 2007) and instilling a readiness for change (Kwahk and Lee 2008). These are all aspects which lead to the achievement of an appropriate implementation climate, which has been found to be critical (Kemp and Low 2008).

Tackling resistance of users (Kim, Lee et al. 2005) is an essential part of dealing with resistance to change as achieving user buy-in has been found to be critical (Verville and Bernadas 2005). One approach found to be critical is the use of super users (Muscatello, Small et al. 2003), however this can also be dealt with organisationally by the utilisation of the HR function (Newell, Tansley et al. 2004; Kim, Lee et al. 2005; Shepherd, Clegg et al. 2009) which relates also to any compensation packages which may need modifying due to the implementation (Cliffe, Champion et al. 1999). The HR department can also be used to instil a common sense of urgency (Sutanto, Kankanhalli et al. 2009) until a "satisfying" mindset prevails (Brown and Vessey 2003), which have both been found to be critical factors in success. In conclusion, in tackling the important aspect of resistance to change, achieving a harmonious implementation (Ho, Wu et al. 2004) and delivering a philosophy of transparency and social integration during the implementation process (Elbanna 2007), have both been found to be critical.

Interdepartmental communication and cooperation

Ensuring that an inter-organisational plan is prepared is a critical task (Koh, Saad et al. 2006) and ensuring that there is an IT readiness to facilitate this change is also a critical undertaking (Finney and Corbett 2007). The MIS department has also been found to play a critical role in the implementation process (Ho, Wu et al. 2004), with effective portal governance being a critical aspect of connecting departments (Sarker and Lee 2003).

Interdepartmental communication is a CSF in ERP implementations (Somers and Nelson 2001; King and Burgess 2008) and involves the critical aspect of "business systems thinking" (Willcocks and Sykes 2000). In addition, the establishment of a communication plan has been identified as being a CSF (Finney and Corbett 2007), with the use of a communications matrix also found to be critical (Woo 2007). The findings of Akkermans and Van Helden (2002) show that having open and honest communications during the implementation process is critical, whilst Newell, Tansley et al. (2004) discovered that bridging and bonding between internal staff groups is critical to successful interdepartmental communications.

Interdepartmental cooperation is an important CSF (Somers and Nelson 2001; King and Burgess 2008) and includes the critical aspect of dealing with multi-site issues in large implementations (Umble, Haft et al. 2003). A partnership approach has been advocated (Verville and Bernadas 2005), whereby a relationship building exercise is critical in establishing understanding between departments (Willcocks and Sykes 2000). A critical task has been found to be engaging with the heads of departments directly (Akkermans and Van Helden 2002) as this leads to the adequate support required from functional units, which has also been found to be critical (Kim, Lee et al. 2005), particularly in their contribution towards system testing (Finney and Corbett 2007).

Business process re-engineering and software configuration

Undertaking business process improvements has been identified as critical (Somers and Nelson 2001; Muscatello, Small et al. 2003; Kim, Lee et al. 2005; Law and Ngai 2007), and research shows that this must involve the establishment of a planned, structured and rigorous process (Verville and Bernadas 2005). To achieve this, BPR and software configuration is critical (Finney and Corbett 2007) which involves the key aspect of understanding the existing legacy systems (Finney and Corbett 2007) to enable critical process adaptations to be made (Ho, Wu et al. 2004). To achieve this it has been found that introducing an "as is" "to be" evaluation is critical (Okrent and Vokurka 2004; Verville and Bernadas 2005) .

BPR is required when undertaking an ERP implementation and it has been suggested that this should begin with the critical task of undertaking a cost benefit analysis (Beheshti 2006), as only by understanding the pros and cons can a clear picture unravel regarding the processes that need re-engineering. It is also critical at this point to identify and build on key in-house IT capabilities (Willcocks and Sykes 2000) which may require changing current business processes. Here it has been found that a critical task is ensuring the project team utilises the knowledge of system users when defining the functionality (Ward, Hemmingway et al. 2005). To achieve this undertaking the critical task of job mapping in the process mapping phase is required (Arinze and Anandarajan 2003) where it is critical to address the technical specifications and customisations required (Ho, Wu et al. 2004).

Acquiring accurate and reliable information is critical (Umble, Haft et al. 2003; Verville and Bernadas 2005) as is the process of identifying any data misfits (Soh, Kien et al. 2000) which are both used for the critical purpose of achieving data conversion (Somers and Nelson 2001; Finney and Corbett 2007). Establishing a knowledge formulation phase has been identified as being critical (Aladwani 2001). Vosburg and Kumar (2001) undertook a case analysis to demonstrate that an ERP system can successfully replace old legacy databases, noting specifically that overcoming dirty data migration problems and identifying key customer data sets are critical aspects. Involving internal staff throughout this knowledge formulation phase is critical (Ho, Wu et al. 2004) and one such critical application is utilising end users to advise on job linking activities (Bozarth 2006). Indeed, Beatty and Williams (2006) identify that this type of testing strategy is critical as it can reveal "show stoppers" in terms of their essential data requirements. It is unsurprising that user involvement in change management situations has been found to be a critical factor (Kemp and Low 2008). It is also critical to inform users of any job redesign issues concerning the nature of work, enabling them to fulfil their new job description (Finney and Corbett 2007).

The issue of KM during the implementation process is important and initially an evaluation and integration of legacy systems must be undertaken (Ho, Wu et al. 2004). This will help to understand the existing knowledge platform. An important consequence of using end-users in the knowledge formulation phase is that internal staffs' professional management knowledge of the system will be heightened post-implementation, which has been found to be critical (Yu 2005). Ultimately, KM relies upon the organisation's flexibility for further learning (Willcocks and Sykes 2000) and the user's maturity for the application of new technology (Ho, Wu et al. 2004) which have both been cited as CSFs.

Training and job redesign

Delivering the training during an ERP implementation is a vast and complex area and one critical finding is that this training should be outsourced (Woo 2007) although it has also been found that user participation in the training process delivery is also critical (Verville and Bernadas 2005).

Management must decide on a number of issues regarding the training delivery, of which some are critical; the first includes the provision of dedicated resources to the training programme (Somers and Nelson 2001), the timing of the training is also important, establishing training intervention is critical (Muscatello, Small et al. 2003), and decisions on possible ways for restructuring personnel post-implementation must also be taken (Mandal and Gunasekaran 2003).

It is critical to undertake an extensive amount of employee education and training (Umble, Haft et al. 2003; Ho, Wu et al. 2004), indeed ensuring all users receive training is critical (Somers and Nelson 2001). It has been found that delivering hands on training is critical (Aladwani 2001) and that it is critical to educate users on new business processes (Somers and Nelson 2001) as well as utilising training to inform users of any job redesign issues concerning the nature of work which enables them to fulfil their job description (Finney and Corbett 2007). One important way to evaluate the progress of the training has been found to be undertaking performance evaluations (Ho, Wu et al. 2004).

During the implementation it is essential to train the end user about the concept of ERP for the full benefits of the system to be realised (Yu 2005). BR is completed post-deployment by the critical task of real-world testing and evaluation (Finney and Corbett 2007; Sutanto, Kankanhalli et al. 2009), this is especially critical where the system is open for the use of the general public, where anxiety may preside (Sutanto, Kankanhalli et al. 2009).

Clear goals and objectives

Having clear goals and objectives is a well-founded CSF (Somers and Nelson 2001; Umble, Haft et al. 2003; King and Burgess 2008) and furthermore, it is critical that these are aligned with current processes or linked with the intended overall business strategy (Themistocleous, Irani et al. 2001; Akkermans and Van Helden 2002; Soja 2006). In addition, incorporating the ERP implementation into a wider shared and clear vision is critical in achieving a successful implementation (Al-Mashari 2003; Finney and Corbett 2007; Sutanto, Kankanhalli et al. 2009),

as is the concept of linking with a wider change programme (McAdam and Galloway 2005) and more recently, recognising the need for change (Sutanto, Kankanhalli et al. 2009).

For achieving clear goals and objectives it is critical that there is clarity at the chartering phase (Markus, Axline et al. 2000) and this must involve senior management (Ward, Hemmingway et al. 2005). Here, it has been found that essential architecture choices must be made (Somers and Nelson 2001) where IT leadership has been found to be essential (Willcocks and Sykes 2000).

Project management

Project management has been widely cited as a CSF (Nah, Lau et al. 2001; Somers and Nelson 2001; Umble, Haft et al. 2003; Ho, Wu et al. 2004; Finney and Corbett 2007; King and Burgess 2008).

Critical steps for the project team are: establishment of an implementation strategy (Finney and Corbett 2007), architecture planning (Willcocks and Sykes 2000), undertaking regular workshops (Akkermans and Van Helden 2002) and setting key milestones (Woo 2007). In setting key milestones it has been shown that the use of a time box philosophy is critical (Willcocks and Sykes 2000), which supports the recent empirical findings of Peslak (2006) regarding criticality of time management. In addition, other specific critical tasks have been identified as being: planning, budgeting, scheduling and management (Peslak 2006; Finney and Corbett 2007; Laukkanen, Sarpola et al. 2007) which encompass the findings of Finney and Corbett (2007) who note that having empowered decision makers is critical.

Gaining senior management support is critical in tackling the issue of resistance to change (Woo 2007), as senior management establish coalitions of interest groups (Ward, Hemmingway et al. 2005) for performing troubleshooting and crisis management exercises, which have been found to be important (Finney and Corbett 2007). It is also critical to establish a road map of tasks (Sutanto, Kankanhalli et al. 2009) and the undertaking of these must be guided by the establishment of a steering committee (Somers and Nelson 2001; Muscatello, Small et al. 2003).

Management of expectations

Management of expectations is an important CSF (Somers and Nelson 2001; King and Burgess 2008), and recent empirical findings by Deep, Guttridge et al. (2008) show that it is critical to have a realistic estimate of value adding processes.

Deciding on the initial approach is critical, be that a comprehensive 'big bang' approach, a middle-of-the-road option or one that is more incremental in nature such as the 'vanilla approach' (Parr and Shanks 2000). Whichever approach is decided upon, it is critical that this should focus on performance measures (Umble, Haft et al. 2003) and that they are aligned by all stakeholders (Akkermans and Van Helden 2002). However, in order to achieve a sound management of expectations, performance indicators must be aligned with the overall implementation objectives (Wei, Liou et al. 2008).

Careful package selection

Vendors sell particular packages or "brands" of ERP, and the package selection has been found to be a critical factor in success (Somers and Nelson 2001; King and Burgess 2008) as system establishment must consider the system specifications (Ho, Wu et al. 2004). Selecting the right vendor is critical, as if the strategic needs of the organisation are not positively exploited, BR will be overlooked (Teltumbde 2000). It is important that the correct brand is chosen as minimal customisation has been found to be a critical aspect (Somers and Nelson 2001; Koh, Simpson et al. 2006; Finney and Corbett 2007).

Informed buying (of vendor package) by the client is a CSF (Willcocks and Sykes 2000) and this can be achieved by utilising a team based selection, which has recently been found to be a critical approach (Deep, Guttridge et al. 2008). The utilisation of stakeholder/sub group evaluations in the adoption process is also critical (Willis and Chiasson 2007) since this approach maximises the business alignment choice (Akkermans and Van Helden 2002). Ultimately, a competent client side negotiating team is critical (Elbertsen, Benders et al. 2006).

It has been found that the establishment of selection and evaluation criteria is a critical aspect of vendor selection process (Verville and Bernadas 2005). Indeed one critical selection criteria has been found to be the amount of expertise the vendor has in their particular field, be that industry sector or strategic application of the ERP system (Taylor 2005). However, possibly most important is the finding that a client appraise of customer needs should be undertaken pre vendor selection (Karsak and Özogul 2009).

Vendor support

Incorporating expert opinion is important, be that through the vendor itself or through other external partners which can add value, for example supplier development has been found to be a critical aspect (Beatty and Williams 2006; Finney and Corbett 2007). This can be achieved by incorporating a support element into the contract and is particularly important for

facilitation and monitoring purposes which have both been found to be critical (Willcocks and Sykes 2000). Having positive relations with external partners is naturally important, however it is critical that the relationship with the vendor is a good one (Somers and Nelson 2001), even to the extent that this relationship must be harmonious (Themistocleous, Irani et al. 2001).

Aligning the needs of the organisation and the software requires particular attention, only here can mismatch awareness be fully understood. Fully understanding the similarities that exist between the organisation and the ERP package (isomorphism) is a critical aspect of vendor support (Batenburg, Benders et al. 2008). It is critical to perform a cost and benefit analysis prior to any outsourcing, for example the use of an ASP (Olson 2007). Here the support of the vendor is extremely important, as only they have the tools to achieve this, which consequently is a critical factor (Somers and Nelson 2001). A critical aspect of vendor support is that they must allocate more time explaining embedded data requirements to the client (Soh, Kien et al. 2000) and their expertise must be used for signing off process maps (Akkermans and Van Helden 2002). In conclusion, there is no doubt that achieving knowledge transfer is critical (Brown and Vessey 2003; Wang, Lin et al. 2007) and this relates to the critical finding of Akkermans and Van Helden (2006) who observed that achieving an exemplary level of vendor support revolves around upgrading the level of training support provided.

Project champion

Having a project champion has been widely acknowledged as being a CSF (Willcocks and Sykes 2000; Nah, Lau et al. 2001; Somers and Nelson 2001; Finney and Corbett 2007; King and Burgess 2008), and empirical research by Akkermans and Van Helden (2002) shows that a critical role they play is in performing effective internal marketing.

2.4 Identifying the gap in literature

The current literature review has identified important concepts that relate to the implementation of ERPII. It has been found that integrating CFA and managing HR are important in addressing the people related resource investments. It has also been found that BPR and CRM are important in addressing the process related resource investments. Finally it has been found that TM and stakeholder relationships are important in addressing the process related resource investments.

From the resource based perspective, 15 key issues have been identified that relate to the implementation of ERPII in CFOs. This has provided a clear understanding of the activities undertaken and formed a basis for the current research.

An evaluation of currently understood CSFs for ERP has revealed all the currently understood factors and has provided an historical account of the changes that have occurred over the recent years in regards to those currently subscribed to.

However, despite the wealth of literature covering IS/ERPII implementations and ERP CSFs, to date no research has been undertaken in regards to the allocation of resource investments within the implementation lifecycle. Identifying CSFs at different stages for reengineering and introducing new ways of working is a methodology used in the EU COBRA project on corporate understanding (Coulson-Thomas 1995). Sharif and Irani (2005) were the first authors to recognise the shortcomings of ERPII implementations if factors are not realised or corrected in a timely or logical manner.

The identified gap in literature

To date no literature has attempted to allocate CSFs for any type of IS implementation (including ERPII) within the implementation lifecycle. This gap in literature has been identified through a detailed evaluation of existing literature covering many aspects of IS research.

This is important because a better understanding of resource allocation during the lifecycle of any IS implementation can enable the more efficient allocation of resources, resulting in a more effective system, saving money and time.

Chapter 3: Research Methods

3.1 Introduction

This chapter outlines the steps taken to ensure that the research question was addressed using the most appropriate methods. In addition, ensuring these methods delivered valid responses has been equally important and this has also been outlined.

3.1.1 Research philosophy

This is an interpretivist piece of research; it involves inductive and deductive research methodologies. Initially inductive research has been used to develop a theory in regards to how resource investments contribute towards benefits realisation. Subsequently, deductive research has been used to test this theory.

This research falls into the area of hypothetico-deductive logic and analysis (Dube´ and Pare´ 2003). A practical implication of adopting a hypothetico-deductive method (Brody 1993) is setting out clear aims and objectives based upon a pre-specified research question.

3.1.2 Research aim and objectives

The formulation of the research question is an important part of any research (Glaser 1992) and this study aimed to answer one overriding research question, which was:

"What are the CSFs contributing to a successful ERPII implementation in a CFO?"

To answer the overall research question, clear aims were set in the way of two research objectives and these were designed to channel and focus the research.

Research objective one:

"Develop a CSF model to investigate resource allocation during ERPII implementation and formulate an understanding of these in terms of benefits realisation"

It was necessary to formulate a cohesive way to organise the information generated from an ERPII implementation. As such, it was necessary to have a model which could break down the implementation into easily understood areas. The model needed to be able to categorise the observations and lead to an understanding of identified potential CSFs in terms of BR.

Research objective two:

"Refine a framework of CSFs based on different stakeholder perspectives to gain an understanding of how resource allocation contributes towards benefits realisation"

In order to achieve a clear understanding of how resource allocation contributes towards BR, different stakeholder perspectives regarding ERPII implementations were investigated. The potential CSFs needed to be validated. This was achieved through interviews with key stakeholders involved in this type of implementation.

3.1.3 The overall research design

This research was designed to capture a holistic evaluation of key factors which positively contribute to the successful delivery of ERPII in CFOs.

Careful attention was paid to the preparation of the research design, data collection and the data analysis to ensure rigorous analysis from the case study setting (Dube´ and Pare´ 2003). Validity is the extent to which a methodology accurately measures what it set out to measure; it is an appraisal of the research method in achieving the claims made (Chisnall 1997). To overcome the lack of reliability of case study analysis described by Boudreau (2001), the current research integrated some of the recommendations made, e.g. having multi-method analysis (case study and interview with practitioners).

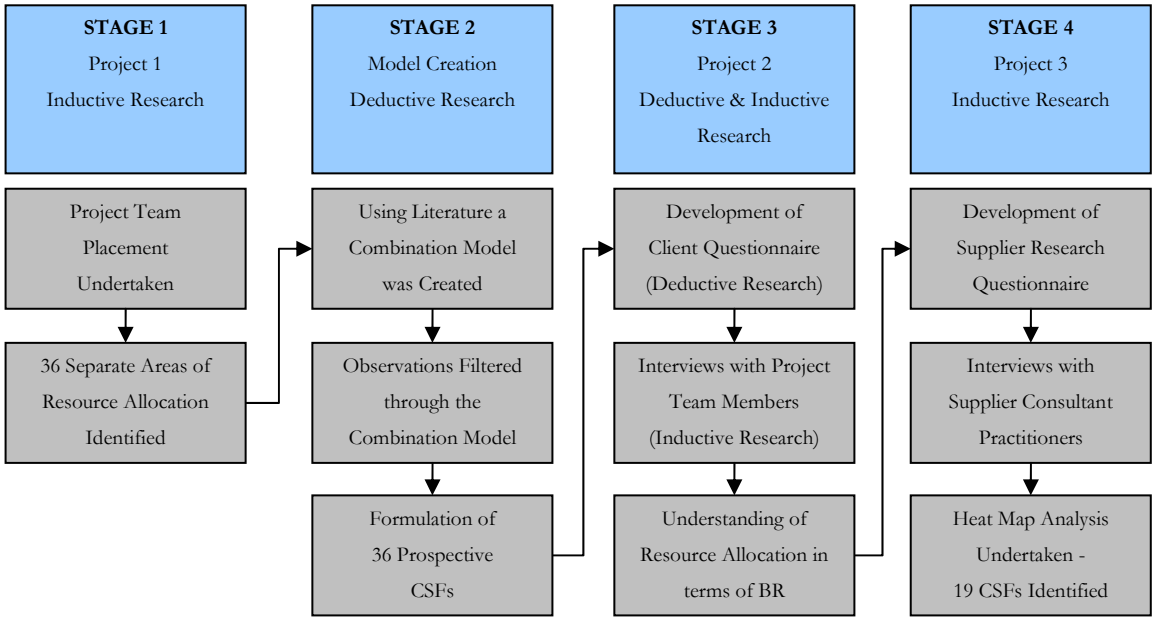
This research design was prepared to address the two research objectives. In total, this research incorporated four key stages:

- To achieve research objective one, two key stages were required. Stages one and two were designed to understand the resource allocations in an ERPII implementation.

- To achieve research objective two, two additional key stages were required. Stages three and four were both designed to validate the prospective CSFs.

Each individual stage had a specific key objective which was designed to address its specific research objective. The key stages of this research are shown in figure 7.

Figure 7: Research Framework



	STAGE 1 Project 1	STAGE 2 Model Creation	STAGE 3 Project 2	STAGE 4 Project 3
Objective	Gain an Understanding of Resource Allocation in ERPII Implementations.	Create a Prospective List of CSFs for Further Detailed Evaluation.	Understand Resource Allocation in Terms of Benefits Realisation.	Establish Consensus to Determine CSFs for ERPII implementation in CFOs.
Method	A 5-Month Project Team Placement Undertaken During an ERPII Implementation.	A Combination Model Created in Order to Understand the Observations Made.	Interviews with Project Team Members Undertaken.	The Views of the Project Team Members were Presented to Seven Supplier Consultant Practitioners for Validation.

All methods applied during these three pieces of empirical research adhered to the ethics and safety protocols of the Durham Business School Sub-Committee for Ethics. An inductive piece of research was undertaken to achieve research objective one, whilst deductive research was undertaken to achieve research objective two:

Inductive research

Stage one involved a five month project team placement (Project 1). These observations were used to create a theory of CSFs in terms of benefits realisation. Stage two was used to develop the list of prospective CSFs. Here a Combination Model was developed and used to categorise the observations made in project one.

Deductive research

Stage three involved understanding if the prospective CSFs had contributed towards BR. Interviews were held with four key project team members (Project 2). Stage four involved undertaking interviews with seven different supplier consultant practitioners (Project 3).

3.2 Stage one - Research method for project one

This inductive piece of research was necessary to reveal the resource investments involved in CFOs implementing ERPII.

The first research objective was:

> "Develop a CSF model to investigate resource allocation during ERPII implementation and formulate an understanding of these in terms of benefits realisation"

Project one was the fist phase of the inductive research and comprised of a five-month work placement within the delivery phase of a CFO implementing ERPII. The work placement was undertaken within the implementation project team and participant observations were undertaken which allowed for notes to be taken and materials collected.

3.2.1 Project team placement

ERP implementations are complex; they embrace change at many levels and different aspects are affected which all need monitoring simultaneously (Benbasat, Goldstein et al. 1987; Yin 1989). Franz and Robey (1984) were one of the first authors to advocate the case study methodology in IS research. Subsequently, Bonoma (1985) recognised this as being particularly useful in addressing qualitative issues and noted that it was particularly useful in scenarios requiring the conversion of observations of complex issues.

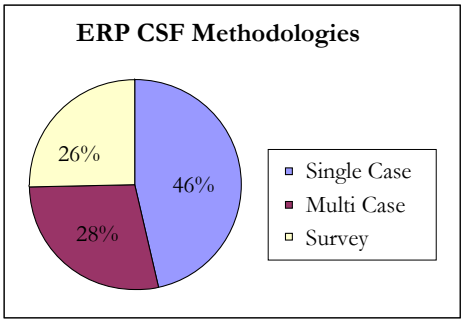
Galliers and Land (1987) identify case study as a traditional method for evaluating IS research for organisations. Case study has become a well-known research methodology for investigative research (Eisenhardt 1989; Yin 1989), and has been defined as "… an empirical inquiry that investigates a contemporary phenomenon within its real-life context …" (Yin 1994 p13). Within the field of IS, case study analysis is the choice of preference and one which the current research has adopted in order to build on the foundations of previous studies.

An exploratory case study can confirm causal questions and so is more appropriate than any alternative approach, such as a confirmatory or explanatory case study approach, which would be insufficient in its research design contribution (Benbasat, Goldstein et al. 1987). It has been suggested that case study analysis is exemplary for theory building (Eisenhardt 1989) which makes this methodology an ideal choice for this section of the research. Case study also

enables existing theory to be built upon, as this method allows for directly observing causality (observations) which help to frame the important issues, and subsequently the ability to combine evidence to validate these findings (Maffei and Meredith 1995). Investigative research also introduces a greater rigorous account in its contextual appraisal (Beck 1992).

Thorne (1994) states that an important step is to understand the methodology utilised in similar previous works. The research methodology decided upon involved a comprehensive review of literature covering CSFs for ERP implementations. In total 53 papers were evaluated in formulating an understanding of currently understood CSFs in literature, consisting of CSFs derived from original empirical research and CSFs outlined in literature reviews. Original empirical research papers described their research methodology and of these there were 44 in total. From these, two distinct research methods were identified: case study analysis (74%) and survey of practitioners (26%) as revealed in figure 8. These empirical research papers highlight further that of those adopting a case study analysis, single case study was the most popular approach (46%) compared to those using a multi-case study (28%).

Figure 8: ERP CSF Research Methodology



In a thorough literature review of qualitative case studies published in leading operations management research journals over the last two decades, Barratt, Choi et al. (2010) identified that the popularity of this method has increased fivefold over the period. In evaluating e-government projects, local authorities have often turned to the structured case method (Carroll and Swatman 2000) particularly because this enables a focused view on maximizing the benefits.

A single case study was undertaken in project one as this allowed for a more detailed evaluation of prospective factors contributing towards the successful outcome. Flynn, Sakakibara et al. (1990) advocate the use of single case study in the field of operational management research, as this specific research method lends itself well towards accounting for "a careful and detailed documentation of practices" (Flynn, Sakakibara et al. 1990 p256) allowing for a clearer understanding of a complex phenomenon. Single case study has also

been shown to be an effective methodology for evaluating end-user system research (Webster 1998), as collecting detailed information and relating this back from the experience of a specific incident is very useful. In terms of delivering a single case study, a key contribution was made by Lee (1989), who highlighted that there are four key potential pitfalls that should be avoided:

Table 23: Pitfalls of Single Case Study Research

Pitfall	Corrective Action
Pitfall 1 - Observations	Confirming observations that are witnessed.
Pitfall 2 - Relationships	Deducing relationships based on the observations.
Pitfall 3 - Replication	Replicating observations wherever possible.
Pitfall 4 - Generalisation	Avoiding generalisation of issues noted.

Benbasat, Goldstein et al. (1987) suggest that case analysis is most useful at the early stages of research as it assists in the formulation of ideas as opposed to confirmations of them. These authors provided the following guidelines: ensure the topics fit into the knowledge building process, provide an explanation for the case selection criteria and ensure information is provided regarding the approach taken towards the data collection process. Furthermore, long standing criticisms regarding the rigour of case analysis were tackled by Dubé and Paré (2003), who outline that IS research revolves around organisational issues, and that this methodology allows for the best collection and analysis of real live situations.

This single case study allowed for detailed participant observation which is an approach ideally suited for the collection of data in organisational and management research (Easterby-Smith, Thorpe et al. 1993). An operational role within the project team gave close access to project team members and activities. To facilitate participant observation the researcher took on a role of employee within the project team, preceding and during the delivery phase of the ERPII implementation. The method of conducting research within an organisation introduces the opportunity of longitudinal research. This approach has been successfully used in previous ERP implementation research, being described as a "neutral observer" approach (Akkermans and Van Helden 2002 p37) in the research process. The behavioural patterns of the implementation were recorded in their natural environment; observational research is good for descriptive research (Hunt, Sparkman et al. 1982). Information gathered from the participant observation was used to formulate the prospective CSFs evaluated during this research.

The selection of the CFO

Following enrolment into the DBA programme in January 2007, the initial key requirement was to source an appropriate 'live ERPII project implementation'. Judgment sampling was required in the selection of the appropriate case study environment. This study investigated the challenges facing a UK Local Authority wishing to achieve customer based BR from ERPII.

The organisation chosen was Bradford council, who serves a population of 477,770 with a staffing capacity of 6000. The ERPII system was seen as a strategic tool to support their customer focused vision and corporate objectives (Bradford City Council 2009). The council invested £170m in a project called Bradford-i and the main aim was to improve efficiency and customer service (Marshall 2008). Several independent service quality indicators are shown in Appendix 37. The ERPII implementation began in June 2005 and the implementation process took two years to complete, although on-going works to develop the system continued further after this date. The system went live in 2007 and this coincided with a five-month work placement within the project team of Bradford council. IBM and Serco worked in partnership to deliver a SAP based ERPII system. Benefits were described as: "Web-enabled secure access to core applications decreases the need for paper forms and manual data entry – reducing administrative workload and improving data quality. Integration of finance and procurement processes boosts efficiency and aids auditability and compliance. Employees can now interact directly with HR systems to perform administrative tasks. Simplified IT architecture improves flexibility and makes it easier to add new services." (IBM 2010).

The key tasks undertaken by Bradford council can be seen in Appendix 38. Some key points of interest are that the Council initiated its ERPII implementation process by selecting the ideal partners, which were IBM and SERCO, who have extensive experience in dealing with public sector ERPII implementations. Once the partners had been selected, the Council appointed project team members, which consisted of IBM, SERCO and Bradford council staff members. This was followed by the appointment of transition champions who were instrumental in the implementation process. In addition, organisational restructuring and training needs analysis were important tasks.

Undertaking the project team placement

During this stage of the empirical research the six sources of evidence listed by Yin (1994) were incorporated into the research methodology, as outlined in table 24.

Table 24: Six Sources of Evidence in Case Study Analysis

Source	Evidence
1	Documentation
2	Archival records
3	Interview
4	Direct observation
5	Participant observation
6	Physical artefacts

In selecting the documentation, key items included presentation hand-outs and internal corporate strategic documents. In addition, information was recorded in the form of notebook journal entries, transcripts and field note entries. In finding archival records, sources such as independent audits provided by the Audit Commission were particularly helpful. In addition a folder was prepared to collect all procedure documents, including copies of corporate communication documents such as e-mails. The direct observations collected included observations of senior management in action within the project team. Participant observations undertaken were connected with the observations of senior management, although this was linked to their motives. Finally the physical artefacts collected included items such as the training materials provided and corporate e-mail correspondence.

The eight point step-by-step guide to case analysis (Eisenhardt 1989 p355) was used as a holistic guide to undertaking the case study, as displayed in table 25.

Table 25: Overall Guide to Case Study Analysis

Step	Guide
1	Getting Started
2	Selecting Cases
3	Creating Instruments and Protocols
4	Entering the Field
5	Analysing Data
6	Shaping Hypothesis
7	Envolving Literature
8	Research Closure

The first step was to define the research setting as a CFO implementing ERPII. The second step was to select Bradford council as the CFO. Step three involved using 15 key issues identified in literature to 'sensitise' the observations made. In step four opportunistic collection methods were used, and participant observation was used at this stage. Step five

involved organising the information and preparing detailed appraisals of each activity. Step six involved filtering the observations made through a combination model to categorise prospective CSFs. Step seven involved ascertaining which activity had been instrumental in delivering the benefits within the ERPII implementation. Meredith (1998) outlines that there is little benefit in adopting statistical analysis to single case study research, noting that the richness of data is key for achieving rigour and extensive qualitative analysis.

3.2.2 Steps taken before the project team placement began

Identifying key issues facing CFOs implementing ERPII

The extant literature was reviewed to provide a general overall awareness of issues facing CFOs implementing ERPII. This initial stage helped to 'sensitise' the observations made.

Resources utilised

One important service used to help facilitate the literature review was DUO, a web enabled secure access gateway provided by the University of Durham, which enabled access to a wide range of library services for distance learning (Durham University). In conjunction with this, EndNote was used to help search, archive and organise literature sources.

The current research drew upon many secondary data sources, including internal organisational documents, business reports, and industry audits. Journal databases also formed an important aspect of the data collection.

- The Web of Knowledge database was an important source covering over 10,000 of the highest impact journals worldwide (Thomson Reuters 2010), and this platform holds some of the highest quality peer reviewed academic journals dating back to 1981 (Eduserve Athens 2010).

- In addition, the Emerald Management Xtra (EMX) database, which is a subscribed service of the University of Durham, was also used as it is considered to be the "largest, most comprehensive collection of peer reviewed management journals and online support for librarians, students, faculty, researchers and deans. It features over 200 full text journals and reviews from the world's top 300 management journals" (Eduserve Athens 2010).

Analysis and interpretation of literature

To ensure relevant publications had not been overlooked in the formulation of the literature review, several steps were taken whilst using the journal databases. First, an individual search of key journals was undertaken over the period 2007 to 2009 where every published title was reviewed for its relevance. Here in sourcing relevant journals, a potential list of leading industry-specific journals was prepared through recommendations from industry experts. In addition, other leading journals within the field of IS/IT were identified using the Aston Business School published league table of journals (Aston Business School 2006).

To accurately search for relevant journals a broad set of "key words" was established, which helped to facilitate the literature review. These covered a wide spectrum of issues deemed to be relevant in the current research, which is an approach outlined by Knippen and Thad (1997). This involved some degree of problem solving, which occurred through brainstorming with members of the DBA cohort, determining the real problem, looking at every possible solution, evaluating each of the solutions, and choosing the best one for their purposes. This brainstorming exercise resulted in the development of the keywords outlined in table 26.

Table 26: Literature Search Terms

Key Words
ERP
Critical success factor
Critical success factor "AND" IT
Critical success factor "AND" IS
Critical success factor "AND" MIS
Critical success factor "AND" CRM
Critical success factor "AND" ERP
Critical success factor "AND" Enterprise resource planning
ERP "AND" Implementation
ERP "AND" Supply Chain Management
ERP "AND" Knowledge Sharing
ERP "AND" Customer Relationship Management
ERP "AND" Training
ERP "AND" Local Government
ERP "AND" e-commerce
ERP "AND" e-service quality

Once the title and article abstract of the papers were reviewed, the publications that matched the specific selection criteria were reviewed. A 100/200 word summary was prepared for each of these, outlining the relevance to the current research. All citations were uploaded to Endnote and recorded on an Excel spread sheet. The Excel spread sheet contained categorised data which included all relevant information including the keyword, the summary etc. The process of categorising literature enabled an effective means of identifying theoretical themes and helped to place concepts raised into the context of the current research setting.

In all instances where journals were reviewed a branching method was adopted whereby any relevant citations made within the papers were investigated further, and usually this citation provided a historic link to other relevant literature sources. Where possible, all of these publications were re-sourced using one of the above methods and reviewed. There were some limitations to this process, the main one being that in the few instances when the full article was not available through the subscribed services of DUO, the context of the publication findings were clearly asserted by reviewing the available abstracts.

In searching the body of literature covering relevant issues, a process of open coding was adopted. Open coding pertains specifically to the naming and categorising of a phenomenon, involving the breaking apart of data, delineating concepts and ultimately qualifying concepts in terms of their properties (Corbin and Strauss 2008).

Filtering literature to sensitise observations

This section of the research methodology involved the identification of key resource based issues influencing CFOs implementing ERPII. The resource base of the ERPII investment formed the basis of the current framework, which is categorised in terms of people, process and technology (Mehta, Oswald et al. 2007). This outline of the resource based investments framed the context of issues identified in the case study environment and facilitated focused observations during project one. A model framework was required in order to filter the observations made. The model incorporated at this stage of the research was the 'IT Business Value' model, a resource based model developed by Melville, Kraemer et al. (2004). This was used to filter observations into their business value resource based contributions.

To validate the choices made in outlining the key issues, content analysis was used (Silverman 2006). This approach has been shown to be an effective methodology in similar research settings (Finney and Corbett 2007) and here the number of instances when an issue was cited within the literature was counted to determine its relevance. If the categories outlined are sufficiently precise (Berelson 1952) content analysis has been shown to ensure a high reliability of its measure, and as such adds validity to the decision of selecting these issues to guide the research.

In total five key issues were identified within each resource base area. Within the area of people these were: (i) managing change within CFOs implementing ERPII, (ii) establishing a training strategy, (iii) quantifying, delivering and evaluating the training, (iv) identifying and providing end-user support and (v) preparing corporate communications. Within the area of

process these were: (i) formation of the project team, (ii) identifying the desired benefits, (iii) identifying stakeholder involvement, (iv) undertaking the design and finance blueprint, and (v) establishing the strategic road map. Within the area of technology these were: (i) vendor selection, (ii), portal integration, (iii) knowledge and content management, (iv) system maintenance and (v) project governance.

The observations made during the project team placement (Project 1) were 'sensitised' in line with the issues identified in literature (Table 27).

Table 27: Filtering Observations

PEOPLE RELATED ISSUES	**OBSERVATIONS**
Managing change within CFOs implementing ERPII.	
Establishing a training strategy.	
Quantifying, delivering and evaluating the training.	
Identifying and providing end-user support.	
Preparing corporate communications.	
PROCESS RELATED ISSUES	**OBSERVATIONS**
Formation of the project team.	
Identifying the desired benefits.	
Identifying stakeholder involvement.	
Undertaking the design & finance blueprint.	
Establishing the strategic road map.	
TECHNOLOGY RELATED ISSUES	**OBSERVATIONS**
Vendor selection.	
Portal integration.	
Knowledge and content management.	
System maintenance.	
Project governance.	

Secondary data collection

The collection of secondary research data was important in providing an awareness of the ERP industry. Establishing a good understanding of the business environment was an important aspect, and this helped set the scene for both client and vendors supplying the market. Market reports formed an important aspect of data collection, and these included: Mintel which provides commissioned analysis of specific industry and of the consumers' economic activity; MarketLine Business Information Centre which provides searchable business information; Datamonitor which provides detailed appraisals of individual organisations and their profiles; Gartner Group which provides specific industry reports and analyses; AMR research which provides detailed market forecasts analysis; FAME which provides detailed annual accounts and financial ratios on companies; and Business Insights database which provides strategic market analysis reports, particularly global market analysis.

3.3 Stage two - Research method for generating a list of prospective CSFs

In order for the prospective CSFs to emerge from observations made in project one, a model was required which could contextulise the observations made. This was an important part of the inductive research phase.

The first research objective was:

"Develop a CSF model to investigate resource allocation during ERPII implementation and formulate an understanding of these in terms of benefits realisation"

To begin the important step of investigating the necessary resource allocations during an ERPII implementation it was necessary to develop a model by which the vast amounts of information gathered could be understood. In achieving the first research objective a Combination Model was developed.

3.3.1 Developing the combination model

The process of developing the Combination Model began with a resource based evaluation of the observations made in project one. The observations were filtered into their resource based contributions by using the resource based model (Melville, Kraemer et al. 2004). At this point a second model was needed to enable the framework to highlight poignant issues of the observations made regarding their contribution towards benefits realisation.

From the literature reviewed, eleven models were found, of these three of the most appropriate were tried out and the best combination which addressed the needs of the research objective was selected.

Table 28: The Benefits Realisation Capability Model

Authors	**Ashurst, Doherty et al. (2008)**
Key Issues	
1	Benefits planning - One definition of benefits planning competence is "the ability to effectively identify and emulate the planned outcomes of an IS development project and explicitly stipulate the means which they will be achieved."
2	Benefits delivery - Not at 1 point in the implementation, but a series of reshaping activities.
3	Benefits review - Monitoring.
4	Benefits exploitation - Building for the next generation of ES systems and exploiting the life cycle of the current system.
	Integrated to the Resource Based View
PEOPLE	
1	How was the Training Strategy built around the benefits that ERP could offer?
2	How important was the timing of the training in regards to getting the most user involvement with the new system?
3	How was the training effectiveness measured and how did this relate to user satisfaction?
4	Were staff encouraged to attend "advanced" training sessions and what steps were being taken for post implementation training?
PROCESS	
1	To what extent did the planning integrate benefits realisation?
2	To what extent did the system processes evolve in order to deliver the outlined benefits?
3	How was benefits realisation governed?
4	What future plans have the Council in expanding on the current ERP system?
TECHNOLOGY	
1	What key criteria was the vendor selection based upon?
2	How does the ASP deliver the benefits the Council desires?
3	Who monitored the progress and performance of the allocated suppliers?
4	What parts of the Councils plans involve the allocated suppliers?

Creating the combination model

To analyse the data revealed in the current research, a combination of two existing models was formulated and this was: the IT Business Value Model (Melville, Kraemer et al. 2004) and the Benefits Realisation Capability Model (Ashurst, Doherty et al. 2008). Once the Combination Model had been decided upon, resource based observations were allocated to their position within the implementation lifecycle. This was determined by where the resource was applied, or alternatively, in instances where the resource investment ran through the implementation, at the point in the lifecycle where it significantly influenced benefits realisation.

The combination model

The first model incorporated into the current research was the 'IT Business Value' model, a resource based model developed by Melville, Kraemer et al. (2004). This model evaluated the resources contributing to IT driven business value by dividing the organisational activities into three main resource areas: people, process and technology. The Benefits Realisation Capability Model developed by Ashurst, Doherty et al. (2008) was the second model incorporated as it allowed the research to identify at which point of the implementation life-cycle the benefits were realised. This model evaluated BR from four separate competencies: (i) the planning of the desired benefits, which has been defined as "the ability to effectively identify and emulate the planned outcomes of an IS development project and explicitly stipulate the means by which they will be achieved" (Ashurst, Doherty et al. 2008 p356); (ii) the physical delivery of the benefits, which takes into account the fact that not always do the benefits occur at one point in the implementation, but as a series of reshaping activities; (iii) the evaluation of BR in the aspect of monitoring - the extent to which variables are accurately measured and reviewed is key to understanding the effects of the planning and delivery outcomes; and (iv) the long term exploitation of the planned benefits relates to optimising the potential for the system and laying foundations for the next generation and in the current research manifested as the acknowledgment of the implementation life-cycle.

The Combination Model was used to identify prospective CSFs within the three resource categories (people, process and technology) and subsequently to locate them at appropriate stages of the implementation life-cycle (benefits planning, benefits delivery, benefits review, and benefits exploitation), and this is displayed in figure 9. Observations made during the project team placement were incorporated into the Combination Model once it had been finalised.

Figure 9: The Combination Model

	BENEFITS PLANNING **(BP)**	BENEFITS DELIVERY **(BD)**	BENEFITS REVIEW **(BR)**	BENEFITS EXPLOITATION **(BE)**
PEOPLE **(P)**	PBP	PBD	PBR	PBE
PROCESS **(PR)**	PRBP	PRBD	PRBR	PRBE
TECHNOLOGY **(T)**	TBP	TBD	TBR	TBE

Creation of prospective CSFs

Once project one had been completed and the observations had been applied through the Combination Model, 36 prospective CSFs were created. It was important to be able to categorise observations made as this presented a clear picture for further CSF analysis. An approach of linking with existing practices was used to undertake this (Denscombe 2002). The analysis to determine the prospective CSFs began after the first observations were recorded, as recommended by Glaser and Strauss (1967) and continued throughout this research phase. A process called axial coding was used to enable prospective CSFs to emerge from this piece of empirical research. The findings observed during the project team placement (derived through open coding) were enabled to be put back together again in a new context (Corbin and Strauss 2008) using the Combination Model. Essentially this is a process which involved differentiating and combining data (Miles and Huberman 1994). This method enabled well established issues in literature, such as "Training Strategy", which is well cited, to be applied. This approach helped to categorise observations that fell within the remit of the current research.

To reveal a prospective CSF, several important steps were taken. Once an observation had been made within an issue area (e.g. Training Strategy, Appendix 1), this was written up to form the "project team placement observations", which appear in each prospective CSF appendix. Drawing from the results of project one, we can see that one observation here was that "Bradford council took three months to prepare their training strategy document which advocated a blended learning environment to deliver the right knowledge at the right time". Any relevant documentational evidence was also recorded and formed the "observational support documentation", which appears in each appendix. In this instance, we can see that revisions and approvals made to the training strategy document involved input from eight different senior members of the project team, including the client and supplier project leads.

Any observation made was classified into one of the areas of people, process or technology. This decision predominantly (but not exclusively) came down to which project team manager was in charge: (i) if the head of training was predominantly in charge of an activity, this would be denoted as "people", (ii) if the head of the project team was in charge of the activity, this would be denoted as "process" or finally, (iii) if the head of the IBM integrated team was in charge, this would be denoted as "technology". Subsequently, a chronological decision was taken as to whether this action was deemed to have occurred early in the implementation (planning), during the implementation (delivery), as a review activity (review), or at the end of the implementation (exploitation). At this point the prospective CSF was formulated. In the example above of "training strategy", the CSF was "an integrated team, who knew the importance of end-user involvement, decided upon the final training strategy". The axial coding process enables the categories to be linked, in so much that the issue and the observation can be matched in the formation of a keyword that encapsulates the meaning of the observation within the issue area. In this example the keyword that emerges is "holistic training strategy". Once the keyword had been created, this was used when interviewing consultant practitioners in projects two and three. In many instances a full description was given alongside the keyword, although having a relevant keyword assisted the consultant practitioners in conceptualising without having to wait for the lengthy description.

3.4 Stage three - Research method for project two

This deductive piece of research was necessary to validate the prospective CSFs. Stage three of the deductive research phase comprised of interviews with key members of the project team two years post implementation (Project 2).

This step was required in order to answer the second research objective:

> "Refine a framework of CSFs based on different stakeholder perspectives to gain an understanding of how resource allocation contributes towards benefits realisation"

Within the field of ERP research, interviews with consultant practitioners have proved to be a successful way of providing taxonomy of CSFs (Clegg, Axtell et al. 1997; Parr and Shanks 2000; Taylor 2005).

3.4.1 Project team member interviews

The empirical research undertaken in project two involved assessing the success of the implementation two years post implementation. To measure the level of success it was necessary to involve project team members in the implementation, who knew the desired aspirational benefits. To ensure the findings revealed the full spectrum of views, multiple participants from key functional areas were involved in this stage of the research, and this was also to increase the validity of the data collected (Easterby-Smith, Thorpe et al. 1993; Miles and Huberman 1994). Four senior members of the project team were involved, each from a key area of the business, as displayed in table 29.

Table 29: Project Team Member Details

STAFF MEMBER	TITLE
Joanne Gott	Bradford-i Accountancy Manager.
Susan Spink	Bradford-i Program Change Manager.
Jagdev Singh	Bradford-i Technical Manager.
Linda George	Bradford-i Head of Training.

To undertake the interviews with the project team members, the seven stages of interview design were incorporated into the preparation (Kvale 1996 p88):

Table 30: Interview Design Stages

Step 1	**Thematizing** Formulate the purpose and describe to context.
Step 2	**Designing** The questionnaire design.
Step 3	**Interviewing** With the knowledge sought always in mind.
Step 4	**Transcribing** Immediately after the interview, from oral to written text, to ensure the contexts were conveyed.
Step 5	**Analysing** Using an appropriate form of discourse analysis.
Step 6	**Verifying** By ensuring the responses were consistent and that the intended factor was investigated.
Step 7	**Reporting** In a way that is scientifically robust and incorporates moral and ethical considerations.

Step one - Thematizing

The decision to use follow-up interviews was a direct result of the use of case study in project one. It has been found that case study indirectly generates close relations with research participants (Miles and Huberman 1984). In terms of the follow-up interviews with senior personnel within the project team, it has been reported that active involvement in the implementation contributes to revisiting opportunities. In addition, in the context of the follow-up interviews with consultants, a sense of shared values also contributes towards this.

Collecting feedback from people involved in the implementation was deemed to be the most effective way of identifying what was critical and what was not critical, and as such the current research involved undertaking interviews with key members of the project team. It was decided that interviews would reveal the most accurate information of the ERPII implementation as a whole.

The timing of these interviews was critical and the follow-up interviews were scheduled with key Bradford-i project team members two years post go-live in September 2009. Findings highlighted within project one were presented to these respondents at the end of the implementation process (using the questionnaire developed from the combination model) to determine their views as to whether they had contributed towards delivering BR.

The interviews were arranged and facilitated by the ERPII project lead, Paul Leese, who ensured the interviews were correctly administered. Two separate interview sessions were undertaken with senior management personnel within the Bradford-i Project team. Each interview session lasted for approximately one hour. The first interview session was with the Bradford-i Project team training manager, Linda George. This interview was designed to evaluate the issues related to the investment into people related areas during the implementation process. The second interview session was with the program change manager, Susan Spink, the accountancy manager, Joanne Gott and technical manager, Jagdev Singh and was designed to evaluate the issues related to the investment into process and technology related areas during the implementation.

Step two - Designing

In designing the questionnaires for the interviews concepts in the form of the Combination Model were used. This assisted with the formulation of the structure of the questionnaire; here the mock questions introduced in table 28 were revisited.

An initial pilot study was undertaken since this has been shown to allow for improvements in the design (Boudreau 2001). Pre-testing the questionnaire to be used in the structured interviews was an important aspect (Bolton 1993), and an initial pilot study was conducted in Module 5 of the DBA program which was distributed from March to April 2008. This was followed by a series of checks where five formal revisions were made from October to September 2009 prior to the interviews being undertaken. One of these checks included a verification in regards to the vocabulary used since matching the vocabulary to that of the respondents is essential (Couper 1996). Ordinary, or industry specific terminology was used to

match the level of respondents being approached (O'Brien 1984; Edmondson 1996), however where possible, ordinary words were used without the use of over technical language, since this has been shown to reduce ambiguity in delivering the survey (Abramson and Ostrom 1994).

The questionnaire prepared for project two (Appendix 40) was structured, and it was important to do this in order to ensure that pre-defined questions were addressed fully. This also enabled each respondent to specify their own views towards each of the pre-defined prospective CSFs. A questionnaire is "a pre-formulated written set of questions to which respondents record their answers" (Sekaran 2003 p.236). Preparing a good questionnaire is an art (Payne 1951), and this research drew upon a number of references to best determine the layout and optimise performance. Blumer (1969) emphasises the importance of preparing appropriate questions as the efforts made are wasted if the questions are not relevant or structured to take the respondent through a journey of self-discovery. The Combination Model helped to structure the questionnaire in such a way, leading the respondent through different aspects, dealing with them one at a time.

The opening questions of the questionnaire were designed to introduce the respondents to the general wider issue (Krosnick and Alwin 1987). These were not analysed but were introduced to instigate confidence and generate a good initial rapport. Some questions were also introduced at the end, and these presented the opportunity for expression (Corbin and Morse 2003). Both of these descriptive responses provided important background information and helped in contextualising the feedback. The questions contained within the body of the questionnaire contained 'why' questions, as this approach draws respondent feedback towards issues concerning (i) attributes or (ii) influence of individual factors (Hess 2001). The questionnaire prepared for the project team members was structured around specific issues identified in the case study (36 prospective CSFs). These were evaluated using a funnel approach (Bickart 1993), whereby a general open (non-leading) question regarding each specific issue was followed by a leading question, which contained the keyword of the prospective CSF. Implicit assumptions can be avoided by taking this approach (Jaffe and Nebenzahl 1984), as the prospective CSFs were not stated in the initial question. Horst (1968) suggests that statements should not exceed 20 words or extend one line in print, so simple, direct questions were used in the questionnaire. Special attention was paid to the terminology (O'Brien 1984; Couper 1996; Edmondson 1996) to avoid ambiguity (Abramson and Ostrom 1994; Stout 1994; Bollinger 2001) in decoding the responses.

The clarification process adopted when preparing the questionnaire for the project team members for validating the potential CSFs was to initiate with a general non-leading question, in order to establish if the point of interest was commented upon in general conversation by the respondent. Subsequently, a leading question which contained the keyword for the prospective CSF was introduced to reveal their views on this specific issue, if they had not already done so. This method of firstly falsifying initial hunches to achieve critical rationalism (Popper 1959) works well in the validation process, since if this is not achieved, findings can then be assessed by moving from a general open question regarding an issue to asking a more specific question. This approach which leads to a specific pre-determined prospective CSF, as mentioned, is called a funnel approach (Bickart 1993), whereby respondents are led through the questionnaire via appropriate sequencing (Festinger and Katz 1966). In accordance with this method, implicit alternatives were avoided with regard to each of the prospective CSFs, and subsequently these implicit alternatives were offered only where verification was sought (Adamek 1994). Each specific prospective CSF had a general (non-bias) introductory question, followed by a subsequent question which incorporated the keyword.

Step three - Interviewing

Compared with other research methods, face-to-face interviews offer little chance of misinterpretation (Hodgson 1987) and this two-way dialogue offered the best way to reveal valuable personal opinions from interviewees. Structured interviews were undertaken in project two as described above, and this interview approach encouraged respondents to consider ERPII implementations as a whole as opposed to their individual successes or failures. This is an established method for this type of IS research, as it examines "the general state of the task environment rather than focusing on the status of the organizational role" (Sanders and Courtney 1985 p81).

To ensure that each prospective CSF was evaluated by an appropriate person, the head of training answered the people related questions, whilst the accountancy manager, programme change manager and technical manager answered the process and technology related questions. From the outset of the interview, the participants were informed this research was based on findings from a project team placement. All interviews were scheduled through telephone calls to either a specific project team member directly, or to Paul Leese who helped set up the interviews. This method was used as initially it presented an opportunity to gain clarification on a few key issues, for example appropriateness and availability. It is a fast and inexpensive method (Sykes and Collins 1988). In addition all respondents were corresponded to via e-mail, which ensured that all parties were fully updated with relevant information

during the interview process, both before and after the interview. Interviewees were presented with a copy of the questionnaire a week before the interview (the leading questions only appeared on the researcher's copy of the questionnaire). This allowed the respondents to prepare responses in advance of the scheduled interviews.

In addition, as recommended by Kvale, direct questions were asked, structured such that the respondent was cut off when they went astray from the specific question and the interviewer remained in silence when they were discussing the correct area. As such the interviews provided detailed accounts of the prospective CSFs and this descriptive discourse allowed for greater understanding of the issue, from an applied perspective. An additional check was in ensuring the exact meaning between researcher and respondents was met, which is essential in reducing response error in the research setting (Stout 1994; Bollinger 2001). To achieve this when CSF "key words" were presented, they were done so with a brief explanation.

Step four - Transcribing

Each participant was asked to answer the questions from their own perspective (Kvale 1996). This meant that the respondents would be able to relate to the transcribed interviews more easily. The interviews were decoded (condensed and interpreted to facilitate a yes/no answer) and written up within a week of being carried out. Once a transcribed version of the audio recording of the interview had been prepared, this was emailed back to the respondent to give them the opportunity to verify any points made. Subsequently, where sections of answers were used to reinforce a point raised by the literature, this quotation was emailed back to the respondent to ensure their quotation was taken in the right context.

Step five - Analysing

Analysing the questionnaires was an important task and here the six steps of interview analysis were adhered to (Kvale 1996 p189-190) as outlined in table 31.

Table 31: Interview Analysis Stages

Stage 1	The vendor participant described their own experience.
Stage 2	The participants discover new revelations from the insights of the interview.
Stage 3	The individual question responses were condensed and interpreted to facilitate a yes/no answer.
Stage 4	The transcriptions were analysed, removing repetitions and highlighting key aspects, bringing the participants meaning to the fore.
Stage 5	A re-interview, where the participant was emailed back their transcribed responses and allowed that opportunity to amend any feedback provided.
Stage 6	Hopefully the participants will incorporate new actions or increase attention towards specific factors upon receipt of published works.

Step six - Verifying

Structured interviews were undertaken as this research needed to draw upon the experiences of project team members with regard to each prospective CSF identified. The current research was self-aware of grammatical meanings in preparing the questionnaire and clarified issues where ambiguity arose. Empirical research involved with the release of tactic knowledge in IS research has revealed a clear mismatch of user meaning and technologist meaning (Zappavigna and Patrick 2010) and it has been suggested that "it requires the interviewer to possess a degree of expertise in linguistic analysis" (2010 p57). The coding was an important part of the questionnaire design, since different coders must be able to arrive at the same conclusions (Berelson 1952). The questionnaires were prepared so that appropriate coding could be used to assist with the analysis of the research.

Step seven - Reporting

An integral part of the current research was reporting on the comments made during the interviews. Throughout this research, meaningful and relevant comments have been used to reinforce points where appropriate. In addition this formed an important part of each prospective CSF appendix.

3.5 Stage four - Research method for project three

This final phase of the deductive piece of research was designed to validate the prospective CSFs. Seven supplier consultant practitioners with experience of ERPII implementations were interviewed (project 3).

This step was required in order to answer the second research objective:

> "Refine a framework of CSFs based on different stakeholder perspectives to gain an understanding of how resource allocation contributes towards benefits realisation"

3.5.1 Supplier consultant interviews

Project three involved cross referencing the views of the client project team members with the views of the supplier consultants. Overcoming the difference in meaning in regards to issues raised between the client project team members and supplier consultants has been of particular importance in the current research.

Interviewing consultants is a longstanding approach in the field of IS research. Within the field of ERP research, interviewing consultant practitioners has been successfully used in providing a taxonomy of CSFs drawn specifically from their perspective (Parr and Shanks 2000; Taylor 2005). It has been found that in this type of research the researcher can draw upon their [the supplier consultants] vast personal experience of implementations in order to highlight key issues (Clegg, Axtell et al. 1997). Indeed in previous research, client project team members' perspectives have been compared with supplier consultants' perspectives (Markus, Axline et al. 2000) in a similar research setting to the current research undertaken.

The first task was to acquire a list of suppliers operating within the UK. This limitation was set as no interview could practically be set out of the UK due primarily to financial and logistical constraints. To accommodate the first requirement, a list of appropriate supplier organisations was identified through online directories such as www.selecterp.co.uk. Each identified organisation was called or e-mailed and invited to participate in the research. The objective of the research was presented to each organisation to ensure only appropriate organisations with experience of ERPII implementation participated.

The most important aspect of this part of the research was ensuring the sample size was large enough to represent the views of supplier organisations. Each consultant participating was asked a series of questions to determine the number of years they had worked within the area of ERP/ERPII, the number and type of organisations they had worked for and the estimated number of implementations they had participated in during their career. In total seven consultants participated, who were: two founding directors, one sales director, one general manager, one head of sales and marketing, one project team manager and one team leader of global IS solutions as seen in table 32.

Table 32: Supplier Consultant Details

CONSULTANT	TITLE	SUPPLIER ORGANISATION
Wes Simmons	General Manager	The Sage Group plc
Hamid Aghassi	Founding Director	1 Team Energy
Dominic Rea	Sales Director	K3 Business Technology Group
Staphanie Snaith	Founding Director	Gradient Consulting
Neil Rushby	Project Team Manager	Access Supply Chain
Ian Farrar	Head of Sales and Marketing	Datawright Computer Services Ltd.
Simon Hulse	Team Leader of Global IS Solutions	Torex

The variety of their managerial seniority was to ensure a full picture could be collected with regard to different aspects of the implementation. Each consultant was highly accomplished and on average each practitioner interviewed had 20 years experience working within the field of ERP/ERPII implementation. Indeed one participant had worked on one of the world's largest ERPII implementations, whilst others had over 100 implementations to their name. In total, the experience these practitioners held was in excess of 500 implementations. This information is documented in Appendix 41.

Conducting and delivering the supplier interviews

The questionnaire prepared for the supplier consultants (Appendix 43) was similar to the client questionnaire, in that exactly the same prospective CSFs were evaluated. The main difference was that the prospective CSF keyword was prompted in the initial question and that the views of the client were presented to the supplier consultants to see if they were in agreement. Consultant interviews were held four months after the completion of the project team's interviews, commencing in September 2010 and being concluded by November 2010.

3.5.2 Data analysis

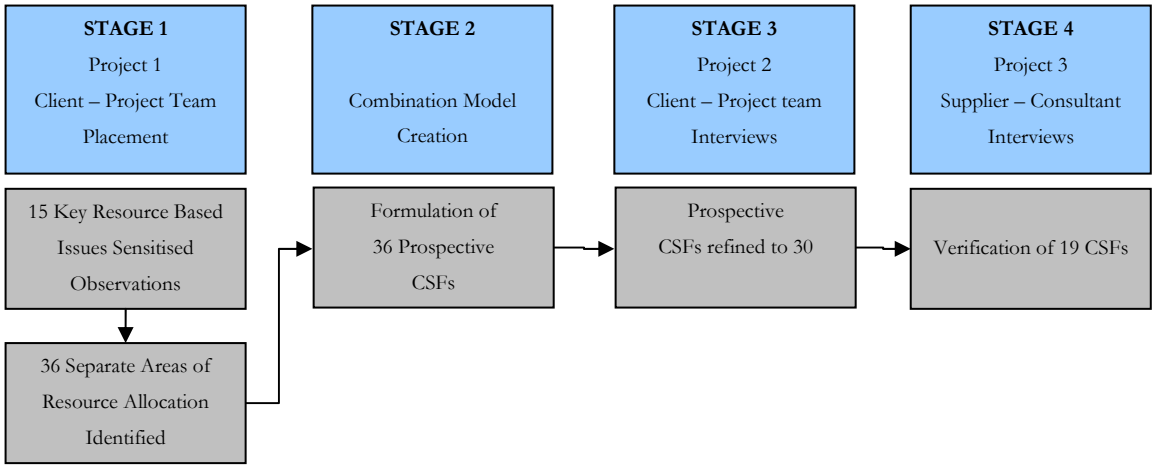
In total, there were considered to be eight responses, or organisational views; the Bradford-i project management team and seven different ERP/ERP II suppliers. The factors were then classified as being strongly supported (7 or 8 respondents agreeing it was critical), marginally supported (4 to 6), weakly supported (1 to 3) and unsupported (0). Heat mapping was used to visually display all factors within the combination model. All prospective CSFs were then analysed by a process of discourse dissection. Here all respondents' comments were collated into a single word document, which enabled a detailed review of each individual CSF.

Chapter 4: Results

4.1 Introduction

The results in this chapter have been presented in line with the four stages of research design (Table 33). Initially, the interim findings have been presented in stage one. Here the key resource based issues facing CFOs implementing ERPII have been identified. These were used to 'sensitise' the observations made in project one (Poject team placement). The results from stage two represent the 36 prospective CSFs. These were identified once the observations had been processed through the combination model (Figure 9). Finally, a consensus heat map has been prepared which highlights 19 validated CSFs for CFOs implementing ERPII.

Table 33: Results Generated From Each Stage of the Research



A detailed evaluation has been undertaken for each of the 36 prospective CSFs. The 19 validated CSFs have been used to prepare an outline of resources required in the context of the implementation lifecycle. In addition, differences in stakeholder perspective have been evaluated describing reasons causing any differences of perspective. Finally, critical pathway steps have been highlighted and also the important of training for CFOs omplementing ERPII.

4.1.1 Filtering of observational data

The interim results of this research are the 15 key issues identified in literature which are considered to be important for CFOs implementing ERPII (Appendix 42). The initial observations generated through a five month project team placement were sensitised using this list of 15 key issues. This enabled focused observations to be made

4.1.2 Formulation of the 36 prospective CSFs

Using the Combination Model (Figure 9), the observations made during an ERPII implementation were formulated into prospective 36 CSFs. Each prospective CSF has been outlined in appendix 43. The combination model categorised observations made into their resource based allocation and subsequently into the position within the implementation lifecycle. Each resource based area has been evaluated separately; people (Table 34a), process (Table 34b) and technology (Table 34c). For each prospective CSF the keyword description has been given along with a brief description of each. Detailed evaluations can be reviewed in their respective appendix, which are the prefix number attributed to each prospective CSF.

Table 34: Part A - List of Prospective CSFs - People

	FOR ADDRESSING PEOPLE RELATED ISSUES			
Planning	1. Holistic training strategy. Initially an integrated team decided upon the final training strategy which contributed towards the holistic benefits outlook.	2. Customer management training. From the observations made all staff were trained in customer management within their discipline.	3. Cost benefits analysis. The training evaluation was via a cost and results based analysis.	
Delivery	4. Receptive training approach. Initially a pre staff survey of all 6,000 staff was undertaken.	5. Timing of training delivery. The training was delivered as it was required (<8 weeks prior to their release).	6. Technophobia. Self identity programmes were initiated e.g. individual logins etc.	
Review	7. Skills based training. Initially staff were segregated into Managers and Employees and also core users were separated from standard users.	8. Training course evaluations. Post training questionnaires were issued to all end users after their training.	9. Benefits delivery outlook to training. An 8 phase training approach was used.	
Exploitation	10. Promote the benefits of the system. Initially the transition champions were critical in promoting the benefits.	11. Knowledge transfer from the vendor. IBM assisted in training the trainers.	12. Internal dissemination of knowledge. Super users supported end users in applying the training, providing on site training support.	13. Knowledge worker support. Deliver future benefits from the new ERP system with post implementation training.

Table 34: Part B - List of Prospective CSFs - Process

	FOR ADDRESSING PROCESS RELATED ISSUES			
Planning	14. Collaboration based design. Initially a complex and integrated collaboration between the Council, IBM and Serco was undertaken.	15. Extensive benefits orientated planning. A lengthy 5 month design phase was undertaken.	16. Business scenario enacting. Business scenarios were acted out representing real accounts.	17. Conservative appraisal of the benefits. An initial £5m and subsequent £30m benefit was outlined.
Delivery	18. Link with a vision. Initially the implementation was linked with the Councils 2020 vision.	19. Benefits orientated delivery. Technical aspects ran parallel with the benefit scope road maps.	20. Communicating the benefits. A communications grid was utilised mapping channel with audience for maximum effectiveness.	
Review	21. Strong inter-departmental communications. Initially the project team developed good internal relations throughout the organisation.	22. Staff selection. Good managers and technically able staff were identified for the project team members via specific job specification requirements.	23. Cross-functional representation. Internal members were seconded from selected key departments to ensure a full representation.	24. Team bonding. Regular social outings were undertaken.
Exploitation	25. Top management support. The CEO Tony Reeves played an integral role and personally signed off many key issues and was present on many PR initiatives.	26. Radical organisational restructuring. Bradford Council adopted a new top management layout that affected many of the service areas.		

Table 34: Part C - List of Prospective CSFs - Technology

	FOR ADDRESSING TECHNOLOGY RELATED ISSUES			
Planning	27. CRM specific expertise. Initially the City of Bradford Council aligned with stakeholders that could add value.	28. Knowledge transfer. Inputs and activities were clearly outlined for each stakeholder.	29. Development of new capabilities. Rely upon the expertise of the ASP outsource 'specialist'.	
Delivery	30. Stakeholder collaboration. Initially the Council ensured that key skilled personnel from critical departments were in collaboration with the ASP during the portal integration.	31. Knowledge fusion management. Knowledge fusion was undertaken, specifically by discovering information synthesis for data input.	32. Customer facilitation. The Councils one stop shop was developed and maximised.	
Review	33. Content mapping appraisals. Initially the content model was mapped specifically with end user involvement and appraisal.	34. Steering groups. Five separate governing bodies, each with its own agenda were involved.		
Exploitation	35. System driven CRM training. Initially CRM training was scheduled for all communities of interest and was designed to develop business benefits, the progress was closely monitored.	36. Assign new responsibilities. Job roles and staff skills were thoroughly mapped, which helped managers to assign individual responsibilities.		

4.2 The consensus heatmap

A consensus heat map (Figure 10) has been used to present the validated results. The figure displays the cumulative responses of the the project team members of the client organisation (project two) and the consultant practitioners of the supplier organisations (project three). A heat map is a graphical representation of data and in this research it has been used as a representative way to present the level of agreement for each of the 36 prospective CSFs outlined. The values taken by each prospective CSF has been placed into a two-dimensional table in accordance with the structure of the Combination Model (Figure 10), denoting the degree to which each prospective CSF has been agreed with.

The views of the four project team members interviewed were considered as one view (the organisational view), this is because, of the four project team members interviewed (Accountancy Manager, Program Change Manager, Technical Manager ad Head of Training) the relevant person answered the question relating to their specific area of expertise. The supplier consultants interviewed each held a view. These included: two founding directors, one sales director, one general manager, one head of sales and marketing, one project team manager and one team leader of global IS solutions. The seven consultant practitioners interviewed each had a wealth of experience implementing ERPII. In the context of this research, each respondent was weighted equally; the organisational view and seven supplier consultant views.

To provide a detailed evaluation of each prospective CSF, each factor evaluated within the heat map is linked with its own individual appendix; this is notified by the prefix number appearing before each factor key word. Within each appendix a detailed evaluation of each prospective CSF can be found, including: (i) an outline of the observation made from the project team placement, (ii) supporting observational documentation in regards to the observation made, (iii) transcribed comments from the interviews held with the project team members in regards to the prospective CSF, (iv) transcribed comments from the seven supplier consultant interviews held in regards to the prospective CSF, and finally (v) a table displaying the breakdown of individual respondent views towards the prospective CSF.

The consensus heat map is broken down into four classifications: Strongly supported (green), medially supported (yellow), weakly supported (pink) and unsupported (red). An evaluation of all strongly supported factors has been presented (considered to be critical) along with a lifecycle based analysis of these. An analysis of all factors not considered to be critical has also been undertaken along with an evaluation of the differing perspectives between the client and supplier organisations.

Figure 10: Consensus Heat Map

	FOR ADDRESSING PEOPLE RELATED ISSUES			
Planning	1. Holistic training strategy.	2. Customer management training.	3. Cost benefits analysis.	
Delivery	4. Receptive training approach.	5. Timing of training delivery.	6. Technophobia.	
Review	7. Skills based training.	8. Training course evaluations.	9. Benefits delivery outlook to training.	
Exploitation	10. Promote the benefits of the system.	11. Knowledge transfer from the vendor.	12. Internal dissemination of knowledge.	13. Knowledge worker support.
	FOR ADDRESSING PROCESS RELATED ISSUES			
Planning	14. Collaboration based design.	15. Extensive benefits orientated planning.	16. Business scenario enacting.	17. Conservative appraisal of the benefits.
Delivery	18. Link with a vision.	19. Benefits orientated delivery.	20. Communicating the benefits.	
Review	21. Strong inter-departmental communications.	22. Staff selection.	23. Cross-functional representation.	24. Team bonding.
Exploitation	25. Top management support.	26. Radical organisational restructuring.		
	FOR ADDRESSING TECHNOLOGY RELATED ISSUES			
Planning	27. CRM specific expertise.	28. Knowledge transfer.	29. Development of new capabilities.	**KEY**
Delivery	30. Stakeholder collaboration.	31. Knowledge fusion management.	32. Customer facilitation.	Strongly Supported
Review	33. Content mapping appraisals.	34. Steering groups.		Medially Supported
Exploitation	35. System driven CRM training.	36. Assign new responsibilities		Weakly Supported
				Un Supported

* Each individual potential CSF is evaluated in Appendices 1 to 36.

The results presented in the consensus heatmap highlight that 19 factors are classified as being strongly supported (7 or 8 respondents agreeing it was critical), 12 are classified as being marginally supported (4 to 6 respondents agreeing) and 5 as weakly supported (1 to 3 respondents agreeing). There were no unsupported potential CSFs recorded (0 respondents agreeing it was critical).

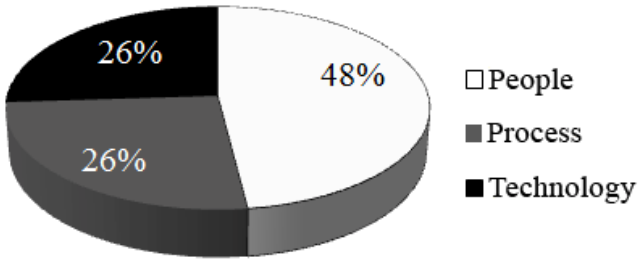
4.3 Analysis of the strongly supported CSFs

The 19 strongly supported (validated) CSFs were considered to be thoes CSFs required for CFOs to successfully implement an ERPII system.

4.3.1 The allocation of resources for CFOs implementing ERPII

Whilst CSFs reside across the resource base of the CFO as highlighted in table 35, nearly half of them are listed as being necessary for addressing people related issues (Figure 11). The remaining CSFs are divided equally into those necessary for addressing process or technology related issues.

Figure 11: Pie Chart Showing Strongly Supported CSFs



This finding strongly indicates that in an ERPII implementation for CFOs, activities necessary for addressing people related issues must be focused upon.

Lifecycle based analysis

From a BR perspective, our findings show that although opportunities present themselves throughout the implementation lifecycle, benefits obtained from the investment in people can be maximised by allocating resources primarily in the exploitation phase (38%), whilst the investment in process should be carried out primarily during the planning (40%) and review (40%) stages and technology should be invested in primarily during the planning (40%) and delivery (40%) stages (Table 35).

Table 35: CSFs by Implementation Lifecycle

	PLANNING	DELIVERY	REVIEW	EXPLOITATION	
PEOPLE	25%	12%	25%	38%	100%
PROCESS	40%	20%	40%	0%	100%
TECHNOLOGY	40%	40%	0%	20%	100%

4.3.2 Detailed evaluation of the strongly supported CSFs

The 19 CSF are listed in table 36, these are broken down by their resource based investment areas and a brief description is given for each one. Details regarding individual CSFs can be found in the related appendix.

Table 36: Strongly Supported Factors by Resource Base

For addressing people related issues		
CSF KEYWORD: Holistic training strategy.	An integrated team (who knew the importance of end-users) decided upon the final training strategy.	Appendix 1
CSF KEYWORD: Customer management training.	All staff were trained in customer management within their discipline.	Appendix 2
CSF KEYWORD: Timing of training delivery.	The training was delivered as it was required (<eight weeks prior to their release).	Appendix 5
CSF KEYWORD: Skills based training.	Staff are segregated into managers and employees and also into core and standard users.	Appendix 7
CSF KEYWORD: Training course evaluations.	Post-training questionnaires were issued to all end-users after their training.	Appendix 8
CSF KEYWORD: Promote the benefits of the system.	The transition champions were critical in promoting the benefits.	Appendix 10
CSF KEYWORD: Knowledge transfer from the vendor.	IBM assisted in training the trainers.	Appendix 11
CSF KEYWORD: Internal dissemination of knowledge.	Super users supported end-users in applying the training, providing onsite training support.	Appendix 12
CSF KEYWORD: Knowledge worker support.	To deliver future benefits from the new ERP system.	Appendix 13
For addressing process related issues		
CSF KEYWORD: Collaboration based design.	A complex and integrated collaboration between the Council, IBM and Serco was undertaken.	Appendix 14
CSF KEYWORD: Business scenario enacting.	Business scenarios were acted out representing real accounts.	Appendix 16
CSF KEYWORD: Link with a vision.	Linked with the Council's 2020 vision.	Appendix 18
CSF KEYWORD: Strong inter-departmental communications.	The project team developed good internal relations throughout the organisation.	Appendix 21
CSF KEYWORD: Cross-functional representation.	Internal members were seconded from key departments to ensure a full representation.	Appendix 23
For addressing technology related issues		
CSF KEYWORD: Knowledge transfer.	Inputs and activities were clearly outlined for each stakeholder.	Appendix 28
CSF KEYWORD: Development of new capabilities.	The Council relied upon the expertise of the ASP outsource 'specialist'.	Appendix 29
CSF KEYWORD: Stakeholder collaboration.	The Council ensured that key skilled personnel from critical departments were in collaboration with the ASP during the portal integration.	Appendix 30
CSF KEYWORD: Customer facilitation.	One-stop shop developed and maximised.	Appendix 32
CSF KEYWORD: Assign new responsibilities.	Job roles and staff skills were mapped, which helped managers assign individual responsibilities.	Appendix 36

In regards to people related investments:

For addressing people related issues, the observations made during the project team placement showed that during the planning stage of an implementation, taking the views of many stakeholders is important. The views should include both those of the supplier who knows the software and those of the client who knows the organisation. Indeed it has been found that a clearer training strategy can en-capture all essential training requirements. It is critical therefore to *develop a holistic training strategy*[1] which integrates aspects of customer management within functional training, so as to address any customer facing transactional aspects of this new system. Within Bradford council, the main training objective for the ERP project seemed to be to create a training programme that delivered an effective ERP deployment across the Council. In achieving this, senior management were prepared to collaborate with many stakeholders and translate this into value adding services to the citizens of Bradford. A great deal of emphasis was placed on delivering access to the right knowledge at the right time, to deliver a "blended learning" environment.

Following interviews held with project team members regarding developing a holistic training strategy, Linda George, the Head of Training, made the following comment: "So the strategy had already been written by the IBM training manager. I had a lot of leeway to implement my own vision when I took on the role. I put in a more detailed training plan. I had more influence within that training plan, but it had to still link back to the training strategy." Linda went on to say that "Developing a holistic training strategy was very important".

In terms of the supplier's perspective, this type of implementation has a high risk of failing if a holistic training strategy is not in place; "we try to get involved in that [preparing the training strategy] because if the customer gets that wrong and the project failed, it will still be our fault" (Wes Simmons). Preparing the detail in the training strategy document is essential, "we would take standard documentation, we would then bespoke each section for each department, each department will then sign off on those training notes" (Simon Hulse). This must involve a formal signoff process, "you have to get the process owners involved, otherwise they won't agree with it" (Hamid Aghasi). In answering the question who should be involved in the training strategy document, Hamid said "well you have got the training department involved, that is for sure, otherwise they won't sign it off, you have got to get the process owners involved, otherwise they won't agree with it and you have got to try to get some of the users, key users, involved" (Hamid Aghassi). This is explained further in appendix 1.

The observations made during the project team placement showed that it is also critical to *incorporate customer management into the training*[2] so as to address any customer facing transactional aspects of this new system. To achieve integrated customer management training, the trainers were all Council staff and this was important as only in this way could acceptance testing be truly accurate, as non-Council trainers would not have the specific understanding to achieve this. Internally recruited trainers have the advantage of bringing with them the cultural understanding of the organisation, and ultimately the aspirations of the system performance. Re-enforcing this point, is the fact that the head of training took the trainers through their "training the trainer" programme. In order to overcome the shortcomings of not having professional trainers, the trainers worked closely with the subject matter experts and wrote up their own training material. This action ensured that every function within the Council received specifically tailored training material, relevant to delivering the optimal performance. IBM delivered pre-prepared training materials covering the entire spectrum of subject matter and each was reviewed by the trainers to ensure that the training material was appropriate for delivery. This process involved amending or rewriting course material and then subsequently returning it to IBM for the changes to be incorporated which was then sent back to the Council ready for delivery. The Council was prepared to pay a high price to ensure the subject matter was perfect. This occurred, despite the extremely tight timescale, where training material was sent to IBM in Belgium for appropriate e-learning materials to be prepared in time for the training delivery. A process of dry runs was used to ensure the material was as good as it could be.

Following interviews held with project team members, Linda George commented that "Trainers were involved in user acceptance testing. The trainers were all council staff. I took them through training the trainer because some of them had never actually delivered training before... the trainers worked alongside the subject matter experts, of that release and whilst working through that they'd start writing the training material".

From the supplier's perspective, training ensures the end-users learn how to use the system to perform their roles, and this is particularly important for customer facing roles. The training strategy can help integrate aspects of customer management since "it is a central document but is not a standard document. It is a central document where each section has been tailored to the department that it is aimed at" (Simon Hulse). For Bradford council this was translated into value adding services to the citizens of Bradford. To undertake this, front-end mapping is required as suggested by one of the suppliers: "we would learn about the business, in terms of business process mapping and then we would map their business processes to our software.

That would then identify how the system would need to be set up, and it would also identify what training was required, and then the training is purely bespoke. So every training is different to every customer" (Ian Farrar, Head of Sales and Marketing, Datawright Computer Services Ltd.). In terms of delivering this, "Once it is configured for their requirements, then we would help them train the trainers. But the important point is that when they deliver that training to the end-user, it has to be how 'blogs and Co.' use the system" (Wes Simmons). Integrating an element of customer management into the training material ensures the end-users learn how to use the system in performing their roles, "we tailor them with the customer service department, the customer service agent will receive customer service agent training, billing customer agents will receive billing training. So it wouldn't be standard training for everyone" (Hamid Aghasi), as explained in appendix 2.

For addressing people related issues, the observations made during the project team placement showed that during the delivery stage of an implementation, the *timing of training delivery*[5] is critical and should be as close to the go-live date as possible. The training schedule began with the appointment of transition champions very early in the implementation process, and subsequently the trainers were appointed and trained, which was undertaken in a scheduled window of workshops prior to any end-user training being undertaken. The timing of the training was very well organised and it was evident that activities fell into place to accommodate the end-user training which was delivered just prior to the go-live date.

Following interviews held with project team members regarding timing of training delivery, Linda George commented: "The go live dates were key. We had no say over this at all. We delivered the training no later than eight weeks prior to a release, so it was fresh in their memories. We needed to have trained people within that window, because then the trainers would have to go onto the next release. So we couldn't let the schedule slip".

From the supplier's perspective this should be "as close to go-live as possible" (Wes Simmons). "It is absolutely critical that you time the training before the go-live date" (Hamid Aghassi); "it needs to be close enough to the go-live for them to remember what they were shown" (Dominic Rea), "but enough time for them to practice" (Staphanie Snaith, Founding Director, Gradient Consulting), as explained in appendix 5.

For addressing people related issues, the observations made during the project team placement showed that during the review stage, it is critical to *undertake skills based training*[7] and within Bradford council, an evaluation began with a quantification of all core users and

all general business users, who were then subsequently quantified departmentally. In terms of undertaking end-user training Bradford undertook managerial self-service training (MSS) and ESS separately. This was undertaken to ensure each staff member accommodated the new system and understood how to perform their role using it. All end-users, both managers and employee users, were trained by the same Council trainers and were supported by the same super users.

Following interviews held with project team members, Linda George commented: "We identified the critical users, 600 of the 6000. Managers from employee. We also sort of undertook role mapping where people were allocated against specific training courses and dates of delivery. We were training for the role mapping that had been undertaken. We were really targeting who needed to be trained".

From the supplier's perspective it is important to segregate staff into core users and standard users and this is essential for ensuring that the core users can deliver the benefits in their new job roles considering "they all have different jobs to do and they require education in different aspects of the system" (Dominic Rea). At this point in the implementation life-cycle it is essential that core users are singled out and supported with additional training, and "it tends to come down to key project users. At the project kick off we identify champions of a particular area, so they're the ones who get all of the training, all of the key training in that area" (Neil Rushby). The core users must be identified and according to one of the supplier consultants, he "would assign a project board who would look after the project [training requirements] and there would be a champion or super user in there and then you'd identify the core users" (Ian Farrar) and "the training would be more detailed for the core users" (Ian Farrar), as explained in appendix 7.

The observations made during the project team placement showed that it is also critical to *carry out training courses evaluations*[8] at this stage. Bradford council did this through post-training questionnaires issued to all end-users after their training. Sample training evaluations were undertaken, and these were used to improve and adapt training delivery.

Following interviews held with project team members regarding the training course evaluation, Linda George made the following comment: "We used Kirk Patrick, this is level 1 to 4, level 1 is the evaluation, what we call the smiley faces sheet, level 2 takes place within the training, so it's where they do exercises to check understanding". The Kirk Patrick evaluation model is widely used for training course evaluations and was applied by Bradford-i.

From the supplier's perspective "a supplier is actually judged on that training course by the evaluation" (Hamid Aghassi). It is also critical to evaluate the mainstream training courses at this stage, which is sometimes seen as "more analysis of the consultant to see if there is any feedback that indicates the consultants themselves need more training. It would be critical in improving…consultants" (Neil Rushby), as explained in appendix 8. Evaluating the training courses can both resolve critical issues concerning the current implementation and serve as a valuable learning tool for the supplier organisation for future implementations.

For addressing the 'people' related issues, the observations made during the project team placement showed that in order to fully exploit the benefits it is critical to *promote the benefits of the system*[10] which is a role of the transition champions (appendix 10). Bradford council outlined a number of important tasks in regards to delivering the training and implemented these strategically to maximize the training uptake. Transition champions were appointed on a voluntary basis, but were selected according to their status. In all there were in excess of 20 for the entire organisation.

Following interviews held with project team members, Linda George said that the transition champions "were trained in order that they could convey important messages with a full understanding of the system" and "it was absolutely critical for the transition champions to promote the benefits to the end-users". Furthermore, Linda made the following comment about promoting the benefits of the system: "The Transition Champions played a massive role, because they were actually change champions back in their department. So they would have regular meetings with the ERP change team and it was like a two-way feedback system. They would feed in, not necessarily to the change team as to what they felt was happening within their department, what the barriers were and then the ERP team would then give them some information to go back with to try and resolve any issues and overcome these barriers".

From the supplier's perspective, the transition champions "have to be internal staff" (Hamid Aghassi) so that internal values are upheld and super users must be well trained. Selecting them is difficult as "you often don't identify, early doors, who that transition champion is, because it might not come from their job titles… some people just see the big picture" (Dominic Rea).

In order to fully exploit the benefits, the observations made during the project team placement showed that system atrophy must be avoided. It is critical to *ensure knowledge transfer from the vendor*[11] which can be achieved by having them train the trainers and in the exploitation phase

by offering post-implementation training and service patch updates. A series of training sessions were run by IBM in order to ensure they gained a solid understanding of the solution and were well prepared for training delivery. To undertake the trainer training, workshop sessions were arranged and these involved Training Needs Analysis (TNA) to identify the number and needs of the users to be trained.

Following interviews held with project team members, Linda George made the following comment regarding ensuring knowledge transfer from the vendor: "I trained the trainers together with IBM, we did it together…I think they let us know as much as we needed to know. Our Council staff worked alongside IBM on the ERP development, this is where the transfer happened, and this was passed to the trainers. That's where the knowledge transfer happened".

From the supplier's perspective the client has "to take ownership of the system, lock, stock and barrel and train the trainer is essential to that" (Dominic Rea), ensuring they can initiate their own future training requirements. The supplier will "try to use the organisation's staff as the trainers, rather than bring professional trainers who are going to do this, because that helps the buy in" (Hamid Aghassi). Although knowledge transfer was classified as being critical for ensuring the exploitation of benefits, "it is done over the course of the project really, it is very important. They [the client] are trained early on and then we [the supplier] work with them in building the solution, so that we are improving their knowledge as we go through" (Neil Rushby). The importance of knowledge transfer from the vendor can be summed in the comment of one of the supplier consultant: "The difference is we [the supplier] get to go home, they [the client] get left with the system". At the exploitation stage, if knowledge transfer from the vendor has not been successful, "the questions that come up will not be 'how do I do this', it's 'how the hell do I do that', and 'how do I do all this work under all this pressure you know we are under?'" (Wes Simmons). The software providers do provide free system patch updates and free training post-implementation as it is at this point in the implementation that the knowledge transfer from the vendor can have a real impact, as explained in appendix 11.

The observations made during the project team placement showed that it was also critical to *internally disseminate knowledge*[12] and in order to do so, a network of super users needs to be appointed. In the case of Bradford council a total of 52 super users were appointed and in the process of appointing super users, the key criteria was that they were representatives from

across the Council's departments. Super users were appointed on a voluntary basis, and were given extra time off work to learn.

Following interviews held with project team members, Linda George made the following comment: "The super users played a really critical role. I would say that the transition champions were more about change management at a departmental level and the super users were more at the end-user level. … The super users were more in ERP the subject matter experts, in that they had been working within each different department".

From the supplier's perspective, "you have got to make sure the super users see it as a long-term job" (Wes Simmons). In the case of super users, "ideally they would be internal people who have been participating in the project" (Hamid Aghassi), as explained in appendix 12.

The observations made during the project team placement showed that it is also critical to *create knowledge workers*[13] to deliver future benefits from the new ERP system, which will be trained post go-live (appendix 13). In the case of Bradford council, even before the end-user training began, a corporate training strategy had been formulated to address post go-live training requirements (to support knowledge workers).

From the supplier's perspective it is critical to create knowledge workers who will be trained post go-live to deliver future benefits from the new ERPII system. Creating knowledge workers is critical to avoid "system atrophies, that's why they atrophy, because you don't do this" (Wes Simmons). Suppliers sometimes "offer standard training courses throughout the year that people can come onto to improve knowledge or in particular areas to expand knowledge" (Neil Rushby), and may put "training materials…on the web…otherwise when a new employee comes in, how do they learn, ...they look at the material and they get information" (Hamid Aghassi).

In regards to process related investments:

For addressing process related issues the observations made during the project team placement showed that during the planning stage of an implementation it is critical to plan *business scenario enacting*[16]. The process validation workshops where the final stage of the blueprint process, involved using business scenarios representing real accounts of situations facing the Council and applying their set vision against these. Each separate session comprised of extensive situational risk analysis and included between three to fifteen staff, depending on the nature of the process involved. On average they took around two full days to be designed

and tested. The completion of all of the sessions resulted in the overall blueprint being signed off.

Following interviews held with project team members, Joanne Gott, the Accountancy Manager, commented: "There was a data capture exercise that informed the benefits realization plan. We did struggle with the data capture, partly because of the trade union involvement and the fear of time and motion studies of individuals and what they were doing. So we had some difficulties in capturing true and efficient data. In terms of feeding into the benefits realization plan it was difficult. It was tracked, and the way we captured the data changed along the way".

Acting out representations of real accounts is important to the suppliers, because "when you get to the user training stage, if you don't do it on their own data they get confused; they start asking questions about the data rather than what the system is" (Wes Simmons). In planning and carrying out the business scenario enacting, "the go-live should be a non-event and if you have done this bit correctly then it will be" (Dominic Rea, Sales Director, K3 Business Technology Group), as explained in appendix 16.

The observations made during the project team placement showed that it is also critical to develop a *collaboration based design*[14]. In the case of Bradford council the blueprint design process comprised of a complex and integrated collaboration between stakeholders; Bradford council (client), IBM (vendor/supplier) and Serco (portal integration and outsourcing team). Initially the key issue involved outlining who were the owners of the process changes and this involved an identification of key users. The needs of the council had to be integrated into the standard (local government) software template provided by SAP, and this was managed by the onsite and integrated IBM team who formed part of the Bradford-i project team. However, the process was a collaborative effort including engagement from senior management which included the Chief Executive Officer, Tony Reeves.

Following interviews held with project team members regarding the collaboration based design, Joanne Gott commented "Systems were designed by process teams for each of the elements of the ERP system, however the consultation was done through workshops involving key stakeholders within the business. So the design of the system and the blueprint was agreed by all the different services across the Council… IBM and Serco were involved in all the workshops and design".

In terms of the suppliers, this can be defined as "one team one plan" (Hamid Aghassi, Founding Director, 1 Team Energy), whereby the suppliers "have expertise, the client has an understanding of the existing way of working" (Hamid Aghassi). What the suppliers "tend to do is offer the advice… the customer then pilots that and if they find it is not working for them for whatever reason, …[the supplier] re-engineers that particular process" (Neil Rushby). Sometimes, in difficult situations, where a "client is saying this, the vendor is saying that, they think they are agreeing but…are going in different directions" (Stephanie Snaith, Founding Director, Gradient Consulting), a mediating consultant organisation is required to "triangulate, because it's only by having a third line in there you can join them up" (Stephanie Snaith), as explained in appendix 14.

For addressing process related issues, the observations made during the project team placement showed that the delivery of the implementation should be *linked with a vision*[18], for example the wider corporate vision. The overall strategy for ERP implementation was linked to the Council's 2020 vision and five-year Community Strategy and Corporate Plan. This undertaking would be heralded as the system that helped Bradford council achieve its overall corporate objectives as being one of the UK's top performing local authorities. Undertaking the Council's 2020 vision and the Council's Community Strategy plan for 2002-2007 both align with directed central government policy. The complementary issue of implementing e-government by 2008 works towards achieving their strategic e-government goals and on an annual basis Bradford council published its progress.

Following interviews held with project team members, Susan Spink commented: "the Council's 2020 was part of the bigger picture, but it wasn't the main driver. It is a driver, you can argue it anyway which was the main driver. It was a driver, yes. From a contingency point of view, you had a payroll system which was about to fail. From a planning point of view and delivering the 2020 vision, that is a different aspect. That is around releasing efficiencies to the front line".

In terms of the suppliers, "that vision is translated into reality" (Hamid Aghassi). This is about "cascading the goals down, because you need to interpret them. The lower down the hierarchy you go, you do need to interpret them because it is much harder for someone who is pushing the buttons to get the big picture, but they need to understand their part in the picture" (Stephanie Snaith), as explained in appendix 18.

For addressing the process related issues the observations made during the project team placement showed that during the review stage it is critical to ensure there are *strong interdepartmental communications*[21]. Bradford council undertook a seven month process of outlining a comprehensive communications strategy which began in June of 2005, and was a key responsibility of the Bradford-i project management team. Key programme messages and themes included outlining strategy, expectations from the system, personal development of staff members, benefits to the organisation, solutions to problems, change management, and performance measurement. The interdepartmental communications were monitored using the "Seven Keys to Success" system. One example can be seen in the distribution of "Go Live" cards to all users, where a system of distribution was set up using interdepartmental communication.

Following interviews held with project team members, according to Susan Spink "In regards to dealing with interdepartmental communications, you could probably say it was both the Bradford-i team and senior management. The Bradford-i board used to meet and still does meet on a regular basis throughout the life-cycle of the project and they are looking at it from a more high level perspective. The project team also has a role in supporting the Transition Champion network which was there to review the benefits, because it addressed the problems they have to enable the benefits to be realized. Yes, they had a key role as they attended the Board and ran the network... The Bradford-i project team was key for communicating departmental information to top management. It was the only method!"

From the supplier's perspective, "the clients themselves have to do this" [ensure strong interdepartmental communications] (Dominic Rea), since "this helps build momentum throughout the organisation" (Simon Hulse), and "if you don't do it, some poor soul at the bottom will get inundated with stuff" (Wes Simmons). This can be achieved through establishing a transition champion network. The transition champions communicate the benefits to the end-users and relay the problems back to the project team. It is particularly important that there are "strong interdepartmental communications, but it is from the client [to the supplier]" (Ian Farrar) to ensure the departments can thoroughly review their new processes, as explained in appendix 21.

The observations made during the project team placement showed also that *Cross-functional representation*[23] is critical. At Bradford council over 14 key senior management members formed a regular cross-functional committee and these individuals were drafted from the areas of

senior management, business development, change management, training, IT, accounts and HR.

Following interviews held with project team members, according to Joanne Gott, the Accountancy Manager, "Cross representation was important, the beauty of having a recruitment process is that we got a good mix of people from different services which brought different strengths…cross representation was important; the areas we were weak on were where we didn't have a good representation. I think that's a fair reflection… We had a couple of areas which weren't represented. These were the ones which caused the problems". Susan Spink commented: "You need a total mix of experts from each area".

From the supplier's perspective "at least one if not normally two people from each department" (Simon Hulse), or key departments, are seconded to form part of the project team. A full representation allows all departments and services to be considered during the implementation. This is particularly important during the review stage so that departments can relay to a like-minded person within the project the problems that have arisen due to the new processes. These problems can then be successfully relayed to the supplier, or internal IT, for action; "It is suicidal to do otherwise." (Dominic Rea) as explained in appendix 23.

In regards to technology related investments:

For addressing technology related issues the observations made during the project team placement showed that during the planning stage it is critical to *develop new capabilities*[29] which should rely upon the combined expertise of the supplier consultant or ASP outsource specialist. Bradford council appointed SERCO as their ASP. The role of the software provider was outlined initially which was to ensure the content management application was available to all users and delivered the services of the Council through an interactive interface. The key requirements of the ASP were to provide the hardware and software necessary to undertake the actions of the system and provide a great deal of the expert technical support as required to all users of the interactive interface system on an on-going basis.

Following interviews held with project team members regarding developing new capabilities, Susan Spink, the Program Change Manager, commented: "The ultimate aim was to improve the back office and therefore release support to your front-end face-to-face delivery of services directly to customers. So it is improving back office functions so we can release those resources elsewhere".

In terms of the supplier, new capabilities can be considered to be "the SMART [Specific Measurable Achievable Realistic and Targeted] objectives, the things we focus on right at the outset. Something you can measure and are deliverable to the project" (Neil Rushby, Project Team Manager, Access Supply Chain). Supplier consultants and ASP outsource specialists can usually "see where an area of an application would be of benefit to users, … then drive that forward" (Simon Hulse, Team Leader of Global IS Solutions, Torex). This has to be driven from an understanding of the client's needs, as explained in appendix 29.

The observations made during the project team placement showed that inputs and activities must be clearly outlined for each stakeholder, i.e. it is critical to *establish knowledge transfer systems*[28]. The role of the software provider was outlined initially and this indicated the requirements of the vendor which included providing the content management model and the functionality aspects. It was essential that the software provider was involved in the analysis of the system and was an integrated part of the implementation team. IBM staff members were allocated office space in the same location to the Bradford-i team and access to Council resources during the implementation. Inputs and activities such as training the council-appointed trainers and providing key training materials were built into the contract and these formed an important part of the knowledge transfer system.

Following interviews held with project team members regarding knowledge transfer between the vendors and Bradford council, Susan Spink commented: "It was part of the contract". The client must set up an internal network to foster this. For example, office space should be allocated to accommodate members of the supplier staff, so that they feel more integrated with the team.

The supplier transfers knowledge to the client by preparing "a system design document and a system confirmation of requirements saying how … [the supplier] envisage it all working and then …it tends to be one-on-one with the area champions to try and ensure they pick up as much of … [the supplier] knowledge as they can through the implementation" (Neil Rushby). In addition, the client must also set up "their own internal support network" so that the client only "come back to … [the supplier] when they have tried every avenue of their expertise and have got really stuck" (Wes Simmons, General Manager, The Sage Group Plc), as explained in appendix 28. The knowledge transfer system must be a two-way street, which encourages constructive dialogue.

For addressing the technology related issues the observations made during the project team placement showed that at the delivery stage it is critical to *address customer facilitation*[32] as this is the transactional element of the CFO. Bradford council strived to improve customer facilitation through portal integration. Three key stages were outlined in the portal integration. Firstly, in order to integrate the information, a detailed understanding of the service offerings was required and extensive work went into establishing communication between the front-end personnel and the technical implementation staff of IBM, so that both parties fully understood the tasks which were required. Secondly, the collaboration between the ASP staff and the Bradford-i project team involved regular meetings where roles and responsibilities were mapped so that automation of processes could be achieved. Finally, the ASP delivered significant design and testing in an attempt to provide a fully operational and integrated interface. The Council's one-stop shop was developed and maximised based on the portal integration which formed the basis of the external portal for the citizens of Bradford.

Following interviews held with project team members, Susan Spink discussed the one-stop shop, commenting "it helps people on the front line, it's not ERP that helps them, it is the integration of CRM that helps them, the feeding of calls through the contact centre, it is the integration of Environmental Health with Planning, all those things that are now all made possible by the technology we have got in place". In addition Joanne Gott commented: "Another thing, there are some initiatives that have actually opened up and supported the community into introducing local spending, things like that. In terms of Council spending, our procurement services to local suppliers and things like that, ensure that its District led".

In terms of the suppliers, they look to perform a "scoping stroke mapping exercise; …speak to each department, and understand what information comes in and what information goes out" (Neil Rushby) and "tend to rely on the people who are at the sharp end of the customer's business" (Wes Simmons), so that they "could have a customer portal where their [the client's] customers could go on and see the status of their orders" (Ian Farrar), as explained in appendix 32.

During the delivery stage the observations made during the project team placement showed that it is also critical to *ensure there is stakeholder collaborations*[30]. Bradford council employed two vendors for two separate areas: (i) supplier and installation software (IBM), and (ii) integration and maintenance of the portal interface (SERCO). Each supplier was tasked to ensure that their part of the integration took into account the importance of the citizens of Bradford who would be the end-user. Stakeholder collaboration was contractually confirmed. Three key

stages were outlined in the portal integration. Firstly, in order to integrate the information, a detailed understanding of the service offerings was required and extensive work went into establishing communication between the front-end personnel and the technical implementation staff of IBM, so that both parties fully understood the tasks which were required. Secondly, the collaboration between the ASP staff and the Bradford-i project team involved regular meetings where roles and responsibilities were mapped so that automation of processes could be achieved. Finally, the ASP delivered significant design and testing in an attempt to provide a fully operational and integrated interface.

Following interviews held with project team members, Jagdev Singh, the Technical Manager, commented: "IBM are our partner, they subcontract the ICT to Serco. Our relationship is with IBM". In addition Susan Spink commented: "the whole contract with IBM/ Serco was about putting in a foundation, a platform, a system to enable the Council to take ICT forward".

In terms of the supplier this is possible through a contract. "The object of a contract is to facilitate an on-going client supplier relationship" (Dominic Rea), "but the contract mustn't be so inflexible that you will just push the technology in and you don't look at the benefits" (Hamid Aghassi). It is important stakeholders work together during portal integration, "because normally, the supplier has got his plan, the client has got their plan,…, another supplier will have their plan and the technology supplier will have their plan… You have got these multiple plans by these suppliers and by some miracle you expect them to get together at one point and deliver, and that is going to be really difficult… So it is really important that the programme managers work together" (Hamid Aghassi), as explained in appendix 30.

For addressing 'technology' related issues the observations made during the project team placement showed that in order to exploit the benefits of the implementation it is critical to *assign new responsibilities*[36]. Job roles and staff skills must be thoroughly mapped in order to help the managers to assign individual responsibilities. This must be driven by consultants who implemented the system, as only they will understand the system capabilities and how this relates to customer facing roles. Within Bradford council the roles, skills and capabilities were mapped. The process changes were undertaken by the departmental information managers, who obtained their information from the system facilitators. Knowledge workers (administrators) were given the task of relaying their job descriptions to the content service providers who mapped new roles to existing staff members.

Following interviews held with project team members, Joanne Gott commented: "That was something that again the Council didn't understand as well as it could have done".

Suppliers may "use in SAP a tool called 'ARRIS', which maps activities and roles, so there is 'who does what', and that is absolutely critical, if you don't do that it is just impossible, just impossible to run a system" (Hamid Aghassi). This is essential for CFOs as the potential for the system can be maximised at this point if the end-user fully understands how the system can help them in their role. This can be realised on the shop floor as "If you get your role out right and you get your process mapping right then people understand what their responsibilities are" (Wes Simmons) and only this way can the end-users understand the benefits of the new system, as explained in appendix 36.

4.4 An analysis of factors not considered to be critical

In the current research, all those factors that were not strongly supported as critical, were considered to be areas where resources do not necessarily have to be allocated. These factors include those classified as medially, weakly and unsupported.

4.4.1 Detailed evaluation of the medially supported CSFs

There were 12 factors medially supported regarding criticality (4 to 6 respondents considering them to be critical). These were areas where respondents had differing views regarding criticality and these were classified as being medially supported factors and considered to be "on-the-fence" in terms of resource allocation.

In terms of that allocation of these factors, one was associated with investment within the area of people, six associated with resource allocation into process related issues and five associated with technology investments (Table 37). A description is given for each factor and details can be found in the related appendix.

Table 37: Medially Supported Factors by Resource Base

For addressing people related issues		
FACTOR: Benefits delivery outlook to training.	An eight phase training approach was used to ensure benefits were realised.	Appendix 9
For addressing process related issues		
FACTOR: Extensive benefits orientated planning.	A lengthy 5 month design phase was undertaken.	Appendix 15
FACTOR: Conservative appraisal of the benefits.	An initial £5m and subsequent £30m benefit was outlined.	Appendix 17
FACTOR: Benefits orientated delivery.	Technical aspects ran parallel with the benefit scope road maps.	Appendix 19
FACTOR: Staff selection.	Good managers and technically able staff were identified for the project team members via specific job specification requirements.	Appendix 22
FACTOR: Top management support.	The CEO Tony Reeves played an integral role and he personally signed off many key issues and was present on many PR.	Appendix 25
FACTOR: Radical organisational restructuring	Bradford council adopted a new top management layout that affected many of the service areas.	Appendix 26
For addressing technology related issues		
FACTOR: CRM specific expertise.	Bradford council aligned with stakeholders that could add value.	Appendix 27
FACTOR: Knowledge fusion management.	Knowledge fusion was undertaken, specifically by discovering information synthesis for data input.	Appendix 31
FACTOR: Content mapping appraisals.	The content model was mapped specifically with end-user involvement.	Appendix 33
FACTOR: Steering groups.	Five separate governing bodies, each with its own agenda were involved.	Appendix 34
FACTOR: System driven CRM training.	CRM training was scheduled for all communities of interest and was designed to develop business benefits, the progress was closely monitored.	Appendix 35

In regards to people related investments:

The observations made during the project team placement showed that during the review stage of the implementation *benefits delivery outlook to the training*[9] can be important, and reviewing the training progress and verifying whether it measured up in order to deliver the benefits should be taken into consideration.

This has been acknowledged as important but not necessarily carried out, as explained by the supplier consultants: "It is a good thing to do but we haven't done it" (Hamid Aghassi), the reason being "It is often a cost issue" (Ian Farrar). Taking this approach can introduce unnecessary problems, and reasons for not doing it include avoiding getting "into an argument

as to whether it is a benefit or not". In addition, "generally the training is done on the basis of you just need to get these people trained rather than this is the benefit we will get from the training" although "they have to understand the benefits of the system before they begin the training" (Wes Simmons).

In regards to process related investments:

During the planning stage, when *benefits orientated planning*[15] is being considered, our observations showed that it is important but doesn't necessarily have to be extensive.

Fro the suppliers perspective "the degree of design depends on how well the business currently works" (Dominic Rea), and also on the length of the implementation. If an "implementation is only between three to six months, …the solution is usually decided within the first two or three weeks" (Neil Rushby), whereas "it is certainly greater than five months in a big ERP system…there are those who do a year of design" (Hamid Aghassi). From a consultant's point of view, there is a strong inclination to have a short design phase as "you don't want to be doing that after you have signed your contract" (Stephanie Snaith). The client may also advocate a quick design phase as "what the senior management is looking for is a quick return on investment" (Simon Hulse).

The observations made during the project team placement showed that at the outset of the implementation, a *conservative appraisal of the benefits*[17] improves acceptance.

From the suppliers perspective, documenting and formulating a benefits per man hour, could be beneficial in that it could be "critical to get the project off the ground" and that it helps to "justify whether they [the client] do it [implement]" (Wes Simmons). In addition, by carrying out a conservative appraisal of the benefits, the client will avoid being a victim of over selling by the supplier, considering the "industry is rife with sales guys who over promise things…The good well educated well advised customer, the person buying an ERP system needs to be armed against the vendor who wants to sell what they've got as opposed to selling what the customer needs. So therefore they have to define those needs upfront themselves and be very acidulous and clever in the kind of questions they ask and it's always got to be very very business specific" (Dominic Rea). However, "it is actually very difficult to do an ROI on an ERP implementation" (Stephanie Snaith) or "to give an ROI on a product of ERP" (Ian Farrar), therefore it is not necessarily achievable; "it is a tangible need but not necessarily financially quantifiable" (Stephanie Snaith) and "there is nothing really tangible, to kind of quantify results before it happens" (Ian Farrar).

The observations made during the project team placement showed that the client has to be wary of the benefits not being realised and a *benefits orientated delivery*[19] can be helpful in setting benchmarks for the benefit deliverables. In the case of Bradford council, this tool wasn't used as efficiently as it could have been.

Following interviews held with project team members, Joanne Gott pointed out that "the strategic road map pace was not going at the speed of the implementation, because we had external contractors [the supplier IBM] working with us to implement within the time. I think the strategic roadmap was somewhat behind the implementation and the implementation superseded the strategic road map". This shows that suppliers are milestone orientated and aim to be on time and on budget, at the expense of BR.

Several supplier consultants made the point that they aim to be on time and on budget, at the expense of BR. As one consultant put it: "we would deliver the technical, that's the bit we get paid for, the benefits are then up to the client to realise" (Wes Simmons). However, this is not necessarily the fault of the supplier if the client is paranoid about the project running over time, or over budget, and has stipulated this into the contract. This was pointed out by a consultant who commented: "it is our role to ensure we adhere to the schedule, I would say we are contractually obliged to" (Simon Hulse). In addition, a consultant also commented that: "it is very difficult to get a supplier to agree to a benefits realization which is outside of their control…if you have got intangible benefits, it is very difficult to delay the milestones because of these intangible benefits" (Hamid Aghassi).

The observations made during the project team placement showed that *staff selection*[22] is critical, however this view was not shared by the project team members.

In contrast to the views of the Client organisation, the consultants felt that "it really helps us when the client project team are highly skilled" (Simon Hulse), saying that "you need the brightest and the best, not the guys who are spare" (Wes Simmons). However, they also commented that "you don't always have a choice of who you work with" (Stephanie Snaith) since for example, "setting job specification could become an academic process that is irrelevant to the reality" (Dominic Rea), and that this can be overcome if "the guidance you are giving them compensates for their lack of skills" (Dominic Rea). Bradford council guaranteed skilled staff by ensuring that "teams were built up through an internal recruitment process … In regards to external appointments, there weren't many, about 2%, the majority were internal appointments. The internal appointments were on a skills basis." (Joanne Gott).

Literature consistently shows *top management support*[25] to be critical, this view was shared during the observations made during the project team placement. Following interviews held with project team members, it was apparent this view was also upheld.

Following interviews held with supplier consultants, the current research identifies that this support should not extend to CEOs direct involvement in the detals of the implementation. Consequently, top management support fell within the marginally supported category in the current research. Top management support is critical for initialising the implementation project and keeping it on track. However, the nature of the support should not extend to CEO involvement in the details, which could be counterproductive, and there is no need for them to play an operational role overly interfering in the critical pathway steps of the implementation. Two consultants felt that CEO involvement could misdirect the project; Wes Simmons commented that "Some CEOs have a very strange view of how their business works, I would say wrong", elaborating that "CEOs aren't involved in the day-to-day enough and what happens is they … start to cut a really big corner off and the people involved are going: "no, no the devil is in the detail!" ". This view was reinforced by Ian Farrar who commented that "CEOs tend to be non-detailed guys; they want to know the top level information, they don't want to get involved with the detail, and they leave that to the other board members or management team". In summary, in the words of Wes Simmons: "So senior management support, senior management encouragement, yes, actually having a CEO in the design team, No.".

The observations made during the project team placement showed that *Radical organisational restructuring*[26] was necessary. Following interviews held with project team members, this view was upheld.

However, following interviews held with supplier consultants, this wasn't always advocated as being critical for successful exploitation of the benefits since from their experience it doesn't always occur. One reason for this would be that "most organisations don't have the ability to change top management structure" (Stephanie Snaith). In addition, it was pointed out that sometimes "it is not the top management that will change, it will be the composition of the people below them" (Dominic Rea), and "the system being introduced empowers the managers even more, rather than restructuring them into a different role; they are probably finding that it strengthens their role" (Simon Hulse). One consultant's analogy for it not being critical was: "it is a bit like asking turkeys to vote for Christmas. I mean sometimes there is a case for it, but generally businesses shy away from it" (Wes Simmons).

In regards to technology related investments:

The observations made during the project team placement showed that during the planning stage it is important to *find CRM specific expertise*[27]. In the case of Bradford council, whilst IBM were the supplier and they subcontracted out to SERCO.

Following interviews held with project team members, Susan Spink, the programme change manager explained that "IBM didn't actually pick Serco, they selected IT Net!" and Jagdev Singh commented that "Serco brought some specific skills we were interested in".

One of the consultants, Wes Simmons, said that it is critical to find CRM specific expertise, and that he would outsource this: "One of the reasons I stay away from CRM is I don't understand it, so I don't go anywhere near it. I know I will be out of my depth. So yes, it is very important to have the specific expertise". However, another consultant, Neil Rushby, had an opposing view stating that: "we focus on CRM which is obviously one module of the overall package that we are offering, so I wouldn't say we put any more weighting on CRM than any other area". The reason he didn't feel that it was critical could be due to the fact that his organisation already has in-house CRM expertise, which is also the case for Simon Hulse, who said: "If we turn to any of our internal applications we will be able to turn to a specific user that has historically dealt with the application, and can help us drive it forward".

The observations made during the project team placement showed that *Knowledge fusion management*[31] introduced during the delivery stage is necessary for data input to create historic customer accounts. Following interviews held with project team members, this view was upheld.

However, the criticality of it will depend on the client, as explained by one of the consultants: "if the company is getting new clients all the time, then you might not bring historic data in, but if they want historical data because they have a fairly stable customer base, then you will bring the historical data in" (Dominic Rea). The alternative to data migration would be to "keep the old system alive and in read-only mode" (Simon Hulse). This option is sometimes considered due to the fact that "you may lose something through going through that ETL [Extract, Transform, and Load] system" (Simon Hulse). Knowledge fusion is recommended "particularly if you have multiple databases" (Wes Simmons).

The observations made during the project team placement showed that *Content mapping appraisals*[33] allow organisations to measure the business performance post ERP/ERPII implementation. Following interviews held with project team members, this view was upheld.

The suppliers had mixed views, and as stated by the consultant Simon Hulse, are carried out "because you want to determine if your project has succeeded or failed". This is useful in situations where service improvement is the driver as the consultant Ian Farrar exemplifies: "we basically replicate whatever they [the client] have now and more. So, if a customer says we have five key reports we need to run, we would write those reports for them". However, a benefit appraisal is not realistic if the new services provided by the ERPII system are significantly different from those of the legacy system, because "then you are not comparing apples with apples, you are comparing apples with oranges" (Stephanie Snaith). This difference is highlighted by one consultant who compared public and private sector implementations, based on his experience in both sectors. In his words: "the approach adopted by the public sector was totally different from private sector clients…this is one of the areas where it was different. The public sector approach was generally let's keep the same because this is how we like to work. So we would bespoke to meet their current ways of working and everything was over-engineered to meet user requirements. Now in the private sector, which by its nature, is far more entrepreneurial,…you have to …get on with stuff, OK, you'll do mini checks…but then you have to get on with it; you have to accept that the system works and a system like ours [the supplier's], which is implemented in fourteen thousand sites worldwide, does add up" (Dominic Rea). This was apparent in the case of Bradford council, where according to Susan Spink, "there were elements already in, in its basic format. There were elements of the CRM system already in…but it's enabled improvements".

The observations made during the project team placement showed that *steering groups*[34] are important. Following interviews held with project team members, this view was upheld.

The views of the suppliers can be summarised by the following quote by Staphanie Snaith: "I would sit on the fence with this. If they add value they are essential, if they become a talking shop, and a winging session, and don't move forward, then I would kill them very quickly". Basically, as pointed out by one of the consultants, steering groups are considered "for the larger organisations… it totally depends on the customer" (Ian Farrar). One of the consultants commented that: "sometimes the customer may hire a consultant to be part of the steering group basically just to ensure that we are doing what we say we do" (Ian Farrar). Several of the consultants had strong views in favour of steering groups, such as: "if you don't have a

steering group it will go to the wall, it is like driving a car without a steering wheel" (Hamid Aghassi) and "steering groups are really important in terms of making sure that you have (a) got an escalation point for critical project issues and (b) you know that you have got someone who makes sure you are staying on track, not just in terms of am I going to finish on this date, but are we getting all the benefits we need" (Wes Simmons).

The observations made during the project team placement showed that *System driven CRM training*[35] was important and allows the client to keep a log of training delivered to individual staff members and utilise the ERPII system to pro-actively target and schedule training. Following interviews held with project team members, this view was upheld.

In the view of one of the supplier consultants, this is done for a large organisation, whereas for smaller organisations, training can be delivered on an adhoc basis. In Ian Farrar's words: "I think in a larger organisation that would be the case, but the smaller customers that I try and target we can have that flexibility where we can extend training if needs be". In another consultant's opinion, whether or not system driven CRM training is carried out depends on the nature of the organisation, public or private sector. Dominic Rea said: "I suspect that CRM is a new method within public sector, a way of incorporating a customer focus to what they do and it is old hat for our [private] industry. It is just…public sector catching up".

4.4.2 Detailed evaluation of the weakly and unsupported CSFs

There were five factors which were only weakly supported as critical (1 or 3 respondents considering them to be critical) and none unsupported. The majority of respondents do not recommend investing resources within these areas. Three were associated with the investment of resources into people and two within the area of Process (Table 38).

Table 38: Weakly Supported Factors by Resource Base

For addressing people related issues		
FACTOR: Cost benefits analysis.	The training evaluation was via a cost and results based analysis.	Appendix 3
FACTOR: Receptive training approach.	A pre staff survey of all 6,000 staff was undertaken.	Appendix 4
FACTOR: Technophobia.	Self-identity programmes were initiated e.g. individual logins, to overcome technophobia.	Appendix 6
For addressing process related issues		
FACTOR: Communicate the benefits.	Inputs and activities were clearly outlined for each stakeholder.	Appendix 24
FACTOR: Team Bonding	The project team developed good internal relations throughout the organisation.	Appendix 28

In regards to people related investments:

The observations made during the project team placement showed that undertaking *cost benefits analysis*[3] was important. However, following interviews held with project team members, this view was disputed.

Following interviews held with supplier consultants, this showed that during training evaluations it is not critical and should simply be "an analysis of get the training done…if you start worrying about the costs as well, then you will just not get it done. So it tends to be… making sure the right people are trained at the right time" (Wes Simmons). In addition, for example, "one training classroom…would be the cost effective way of doing it", however, "what you might have to do is go around to five regional offices training one or two people at a time to get the training done, that is not the most cost effective way of doing it, but it is the right way" (Wes Simmons).

The observations made during the project team placement showed that during training delivery, a *receptive training approach*[4] was important. However, following interviews held with project team members, this view was disputed.

Following interviews held with supplier consultants, it was shown that this does not need to be considered, especially since "the training is based on the product you can mostly train, not what the end-user would prefer to have" (Wes Simmons), and "the approach is driven by the project board, not the user" (Ian Farrar).

The observations made during the project team placement showed that when delivering the training, *tackle technophobia*[6] is important. Following interviews held with project team members, this view was upheld.

Following interviews held with supplier consultants, it was quickly identified that this is an issue that could have historically been tackled, but nowadays "if someone is technophobic, they don't belong in a modern organisation" (Dominic Rea). Furthermore, the pendulum has now swung in the opposite direction and people complain that the consultants "are not technical enough" (Wes Simmons).

In regards to process related investments:

The observations made during the project team placement showed that *communicating the benefits*[20] could be beneficial. Following interviews with project team members, this was agreed.

Following interviews held with supplier consultants, showed that from a client's point of view, suppliers don't tend to get involved in this, which is reflected in the fact that they "don't have a thing called a communications grid" and their "honest view is that it is the job of the client" (Dominic Rea).

The observations made during the project team placement showed that *Team bonding*[24] was important. Following interviews held with project team members, this view was upheld.

Following interviews held with supplier consultants this was not supported, because for one, "projects could go too much to the softer aspects of it and miss out delivery deadlines" (Hamid Aghassi), "you don't want it too bonding because you need the challenge" (Stephanie Snaith), "if they bond too much what happens is, none of them want to break the status quo" (Dominic Rea) and most importantly, organisations usually "can't afford any expenditure for [team bonding]…, they can't afford any downtime in man hours" (Simon Hulse).

4.5 Areas of differing stakeholder perspectives

This section of the results reveals the issues where disagreements are found and attempts to identify the underlying causes of these disparities. Regarding resource allocation during ERPII implementation, there are definite incidences where the client and the supplier consultants did not agree on the best course of action. Important factors rejected by the supplier consultants but accepted by the client are addressed in this section of the research. In addition, those factors where all the supplier consultants agreed regarding their criticality but the client disagreed are also addressed.

To understand the individual perspectives of the client and the supplier consultants, individual heat maps of their respective responses have been prepared and are shown in figures 12 and 14. In total there were five instances where the perspectives of the two stakeholders differed (highlighted in white in the figures); three were where all the supplier consultants were in agreement and the client disagreed, and two were where all the supplier consultants disagreed and the client agreed. In this second instance, where factors were important to the client but not regarded as critical by the supplier consultants, these factors were not classified as being critical due to the cumulative nature of the responses in defining CSFs. This limitation has been identified and where possible accounted for.

Figure 12: Client Project Team Perspectives

	PEOPLE			
Planning	1. Develop a holistic training strategy.	2. Integrate customer management training.	3. Undertake cost benefit analysis.	
Delivery	4. Receptive training approach.	5. Timing of training delivery.	6. Tackle technophobia.	
Review	7. Undertake skills based training.	8. Training course evaluations.	9. Develop a benefits delivery outlook to training.	
Exploitation	10. Promote the benefits of the system.	11. Ensure knowledge transfer from the vendor.	12. Internal dissemination of knowledge.	13. Create knowledge workers.
	PROCESS			
Planning	14. Collaboration based design.	15. Extensive benefits orientated planning.	16. Business scenario enacting.	17. Conservative appraisal of the benefits.
Delivery	18. Link with a vision.	19. Benefits orientated delivery.	20. Communicate the benefits.	
Review	21. Deliver strong inter-departmental communications.	22. Staff selection.	23. Cross functional representation.	24. Team bonding.
Exploitation	25. Top management support.	26. Radical organisational restructuring.		
	TECHNOLOGY			
Planning	27. Find CRM specific expertise.	28. Establish knowledge transfer systems.	29. Develop new capabilities.	
Delivery	30. Stakeholder collaboration.	31. Knowledge fusion management.	32. Customer facilitation.	KEY
Review	33. Content mapping appraisals.	34. Establish steering groups.		Outright On prompt Reject
Exploitation	35. System driven CRM training.	36. Assigning new responsibilities.		(Acceptances)

Figure 13: Supplier Consultant Perspectives

	PEOPLE			
Planning	1. Develop a holistic training strategy.	2. Integrate customer management training.	3. Undertake cost benefit analysis.	
Delivery	4. Receptive training approach.	5. Timing of training delivery.	6. Tackle technophobia.	
Review	7. Undertake skills based training.	8. Training course evaluations.	9. Develop a benefits delivery outlook to training.	
Exploitation	10. Promote the benefits of the system.	11. Ensure knowledge transfer from the vendor.	12. Internal dissemination of knowledge.	13. Create knowledge workers.
	PROCESS			
Planning	14. Collaboration based design.	15. Extensive benefits orientated planning.	16. Business scenario enacting.	17. Conservative appraisal of the benefits.
Delivery	18. Link with a vision.	19. Benefits orientated delivery.	20. Communicate the benefits.	
Review	21. Deliver strong inter-departmental communications.	22. Staff selection.	23. Cross-functional representation.	24. Team bonding.
Exploitation	25. Top management support.	26. Radical organisational restructuring.		
	TECHNOLOGY			
Planning	27. Find CRM specific expertise.	28. Establish knowledge transfer systems.	29. Develop new capabilities.	KEY 7 6 5 4 3 2 1 0 (Acceptances)
Delivery	30. Stakeholder collaboration.	31. Knowledge fusion management.	32. Customer facilitation.	
Review	33. Content mapping appraisals.	34. Establish steering groups.		
Exploitation	35. System driven CRM training.	36. Assigning new responsibilities.		

The three strongly supported CSFs which were considered to be critical by each of the supplier consultants but rejected by the client are: training course evaluations, knowledge worker support and assigning new responsibilities. These are all supported in literature, yet did not have the backing of the client organisation involved in the research. The two weakly supported CSFs which were considered to be critical by the client but rejected by each of the supplier consultants are: team bonding and communicating the benefits. These two factors do not feature in the top ranked CSFs identified in literature. All five of these factors are evaluated in greater detail to reveal the reasons for the differences in opinion.

Our research shows that *training course evaluations*[8] are critical, but by cross-referencing client and supplier feedback, we can see that Bradford council felt that it wasn't critical to their implementation since the responses collected from the training course evaluations were not acted upon because "the schedule was so tight, there was absolutely no time really to do any massive overhaul of anything" (Linda George). The consultants, on the other hand, "think this critical" (Hamid Aghassi). This contrast in opinions could be due to the fact that training course evaluations do not directly benefit the client in the short term whilst "a supplier is actually judged on that training course by the evaluation" (Hamid Aghassi), it helps the "consultant to see if there is any feedback that indicates the consultants themselves need more training" (Neil Rushby), and it helps them "to improve …[their] training courses" (Dominic Rea). The consultants maintain this viewpoint even though admitting: "to the overall implementation I don't think it makes any difference" (Neil Rushby), explained in appendix 8.

A second instance where Bradford council found an issue not to be critical when all of the consultants did was in *developing knowledge workers*[13]. The reason the Bradford-i project team did not consider this to be critical was because "ultimately no long-term training was accepted, neither the corporate centralised or departmental training scheme." (Linda George). However, the consultants explain that developing knowledge workers "is not critical to the success of the programme" (Hamid Aghassi) but can cause "system atrophies" (Wes Simmons) if not carried out and is therefore critical "if you really want to realise your benefits" (Wes Simmons). Unfortunately, maintaining a centralised training body post-implementation costs a great deal of money as highlighted by Linda George, who said that: "they [senior management] wouldn't keep a centralised team because I don't think they were willing to support any more from the program and I had several meetings with different departments about owning the training material and all they said was that they didn't have the resources to handle this. So, really training hasn't continued…". This isn't unique to Bradford council as pointed out by the consultant Neil Rushby who said that "in fairness there is next to no take-up on those

standard courses" even in instances where they "offer free training on new features that have come out and how they might be used", as explained in appendix 13.

The third and final instance where this situation occurs, where Bradford council found an issue not to be critical when all of the consultants did, was in *assigning new responsibilities*[36]. Joanne Gott, commented that assigning new responsibilities "was something that again the Council didn't understand as well as it could have done... People's job roles were not aligned with the system processes." Since it was not carried out in a proactive manner, it was not felt to be critical. The consultant Dominic Rea acknowledges that from his "experience in the nineties of public sector work, change is a bad thing". This resistance to change could explain Susan Spink's, observation that "large problems have been manifested by the self-reach managers [managers who's role is to job map] taking place subsequently to it [the ERPII interface] going in". All the consultants strongly advocated assigning new responsibilities as critical; "of course if you have got a new system, the new roles and new responsibilities must be assigned otherwise it will fail. How can you put a new system in place with new processes and then expect not to match the roles to the system" (Hamid Aghassi), as explained in appendix 36.

There were two instances where Bradford council found an issue to be critical when all of the consultants did not. The first of these was in *communicating the benefits*[20], where Bradford council invested a lot of resources in setting up programme meetings, briefings, videos, presentations, newsletters, e-newsletters, intranet postings, staff events and elected member events. The Bradford-i project team drew up a communications grid mapping the most appropriate communications channels to the relevant stakeholders. Communicating the benefits ensured the target audience were engaged and maintained interest. Bradford council communicated the benefits mostly through workshops and transition champions, as pointed out by Susan Spink who said: "there were numerous workshops, specifically designed for the particular release we were working on. And with a set of change champions, which were known as transition champions that ran for nearly four years, and they were a group of fairly vocal people, that felt comfortable in the arena in which they were aiming to address their fears and issues, and have them identify critical success factors." However, Joanne Gott pointed out that "the workshops were council led, and IBM sort of listened to the requirements" demonstrating that suppliers don't see it as critical. Likewise, none of the consultants interviewed found this to be critical and "generally expect the client to do that" (Wes Simmons), it is seen as "the job of the client because they uniquely know the politics internally" (Dominic Rea). Communicating the

benefits is therefore a process that may or may not be undertaken and depends on whether the client feels it is necessary, as explained in appendix 20.

The second instance where Bradford council found an issue to be critical when all of the consultants did not was in *team bonding*[24]. Bradford council invested a lot of resources in regular team meetings (for example to discuss the established "seven keys to success" updates) and social outings for team bonding, which according to the consultant Dominic Rea was "so spending taxpayers' money". None of the consultants agreed that team bonding was critical and on the contrary, were against it, for example, "warning against excessive, touchy feely aspects of the programme which would then become a rolling missed milestone and missed deliverables" (Hamid Aghassi), as explained in appendix 24.

4.5.1 Summary of differing stakeholder perspectives

There are many reasons why client and supplier organisations may disagree and this research has revealed a few conflicts of opinion as to where resources should be allocated during an ERPII implementation.

The results of this research have highlighted a few issues where the supplier feels particularly strongly and the client is not so keen and these are: training course evaluations, developing knowledge workers and assigning new responsibilities. At first glance, these seem perfectly ordinary potential CSFs, however, a closer look reveals the real reasons these were conflicting results. If we consider training course evaluations, it is very apparent to see why the client organisation would not be happy allocating significant time and money into evaluating something that has been delivered. There would be no realistic means of introducing the training improvements to help their organisation further. In fact our research reveals that the main beneficiary is the supplier who collects valuable feedback for their next client. Secondly, if one looks at the two issues of developing knowledge workers and assigning new responsibilities, the supplier would be happy to allocate resources into these activities as it ensures the long-term success of the system. From the client's perspective, these could be considered to be additional unnecessary costs which simply prolong project sign-off. In fact, only the supplier, with their experience of post-implementation actions necessary to achieve full-system BR would be keen on these issues.

The results of this research have also highlighted a few issues where the client feels particularly strongly and the supplier is not so keen and these are: communicating the benefits and team

bonding. It is immediately obvious why the client organisation would be keen to allocate resources into achieving these two issues; if one looks at communicating the benefits, it is apparent that the client would have this as one of its top priorities, however, our results show that the suppliers see this as the client's responsibility. In addition, the issue of team bonding is one which the client would see as critical, as it is their project team and their implementation, however, as the implementation will be based on a contractual basis, any soft issues of people management will be overlooked by the supplier who looks to increase margin from the completion of the contract.

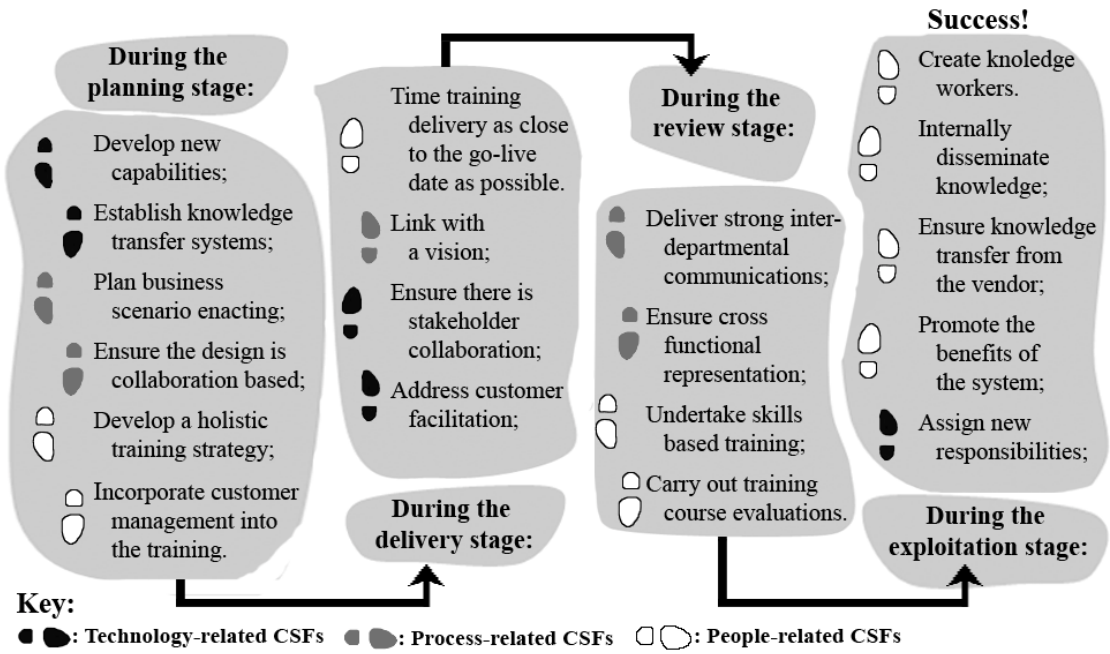
4.6 Summary of results

4.6.1 Critical pathway steps

This research highlights current issues that address BR for CFOs implementing ERPII. By using the Combination Model developed by the author, the 19 CSFs were allocated to the different stages of the implementation lifecycle within their resource base. Critical pathway steps necessary to deliver a successful ERPII implementation in CFOs have been identified.

The findings of the critical pathway are based on the cumulative results of key stakeholders, and represent the collective agreement of CSFs for CFOs looking to implement ERPII. These are collectively recommended as the essential CSFs an organisation should allocate resources during the implementation.

Figure 14: Critical Pathway Steps for CFOs Implementing ERPII



In terms of the order of the CSFs identified in this research, the combination model has enabled these issues to be allocated throughout the implementation life-cycle:

During the planning stage it is essential to develop new capabilities and from this the implementation philosophy can take shape. The capabilities desired will be unique to the organisation and so it is essential that the supplier has a good understanding of these. One way of achieving the understanding is by establishing knowledge transfer systems. Ensuring all stakeholders adopt a team philosophy is important as ideas are generated at this point and one example is in the seamless integration of client and supplier workers in the office environment. Ensuring a collaboration based design where all stakeholders are involved and have an equal say in determining the detail of the final solution is an important aspect. There can be misunderstandings on an implementation; the client knows the business and the supplier knows the limitations of the software and often compromise is the mediating factor. One way of planning in the desired benefits is by undertaking business scenario enacting across every function of the organisation and this ensures that benefits are realised. Developing a holistic training strategy ensures that all stakeholders contribute towards the planning of the training delivered. One important focus of this should be to incorporate customer management into the training.

During the delivery stage the views of the client and supplier should be realised by undertaking stakeholder collaboration. Here a contractual understanding of the requirements could serve as a guide to the implementation tasks. The client will have a plan, the supplier will have a plan and any third party contractor will also have a plan, therefore these plans must be unified. One way of achieving a unified plan is by adopting customer facilitation which is the transactional element of any CFO and can take the shape of a 'one-stop shop'. If all stakeholders understand the benefits and how these are to be delivered, all parties can work towards the same goal. The organisation must link the implementation with a vision such as the wider corporate vision or one specifically set for the implementation. The timing of training is critical and should be as close to the go-live date as possible, so that the end-users have the best opportunity to apply what they have learnt.

During the review stage it is critical to deliver strong inter-departmental communications. The "seven keys to success" system is IBM's strategy for ensuring this. In addition, it is essential to have cross-functional representation within the project team. At this point it is essential that information relayed is fully understood and acted upon. Only a skilled professional, seconded from the relevant department will be able to understand the feedback of the transition

champion and communicate this message to the technical team of the supplier. Undertaking skills based training ensures that core users receive targeted training and are not overloaded with information they do not need. It is essential to carry out training course evaluations at this point in the implementation lifecycle as this is the last opportunity the organisation has to address any training oversights and it is mutually beneficial to the supplier who can use this as a learning experience for their next implementation.

During the exploitation stage assigning new responsibilities is critical as in CFOs new CFA have been introduced which are essential to delivering BR from the system. Only the end-users can facilitate this by adopting these new responsibilities in their working role. To ensure the immediate benefits are realised, one key issue revolves around promoting the benefits of the system. Here the relevant benefits must be communicated to the relevant stakeholder, for example if a 'response prompt' feature is available to a customer service operative, the customer service operator must be told about this feature. This is a task of transition champions, who should fully understand the business benefits being delivered and can therefore relay information directly to the project team. It is important that the transition champion network covers all functions of the organisation and is a direct link between each functional area and the project team. It is also critical to ensure knowledge transfer from the vendor during the exploitation stage. This is particularly important at this point in the implementation lifecycle as it is here that suppliers offer system upgrades and follow-up training. These are usually scheduled visits post-implementation to check on the progress of the implementation. For CFOs these opportunities are critical points to maximise BR. Another critical factor during the implementation is to internally disseminate knowledge which is achieved by having a network of 'super users', who are ready and able to help other users. An important issue is that the recruited super users see this role as long-term and should they leave the organisation, they are replaced. In addition to the long-term commitment offered by the supplier, the client organisation must also have a long-term commitment to post-implementation training in order to deliver BR. Only by allocating a post-implementation training budget can they create knowledge workers who will receive post-implementation training.

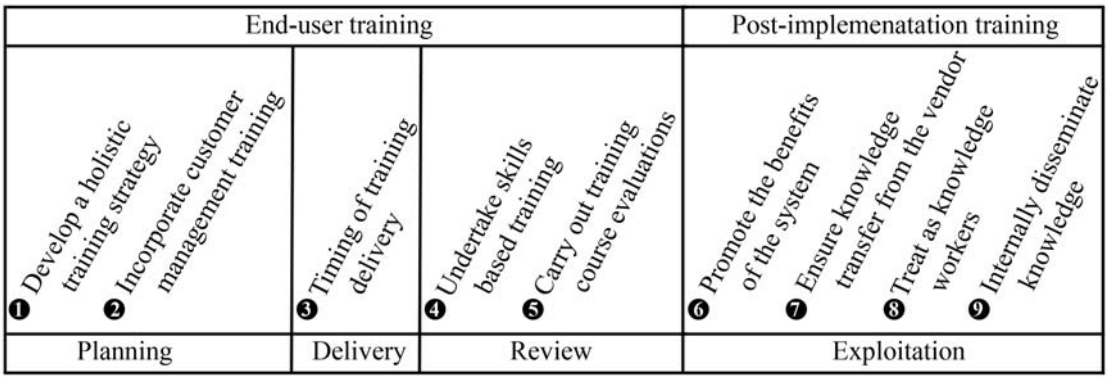
Summary comment

It is important to note that as the ERP market has been shown to be volatile, experiencing many changes, updates to this pathway may be required to accommodate the 'new' issues of the day in the coming years.

4.6.2 The importance of training for CFOs implementing ERPII

The current research highlights the importance of training and training related issues for realising the benefits from ERPII systems in CFOs. Investment in training and in training related issues was shown to be necessary throughout the implementation life-cycle and two areas of training have been highlighted as requiring investment; end-user training and post-implementation training. Literature to date has stressed the importance of end-user training but this research suggests that post-implementation training is equally important for realising the full potential of the benefits (Figure 15).

Figure 15: Training Requirements for Highly Demanding IS



End-user training:

This research shows that an integrated team, made up of senior management members from client and supplier partners should design and approve the training strategy document. This must take account of the holistic training requirements of the system; end-user training, training support and post-implementation training. The training strategy must be tailored for BR of the highly demanding IS and appreciate the demands this system places upon the end-users. For the client, a holistic training strategy will en-capture all essential training requirements so that it is bespoke for each department and adapted towards the customer facing services they offer. In the case of Bradford council the training was tailored for each functional department, ensuring that the specific benefits are realised for each department. Integrating an element of customer management into the training material was also shown to be critical and ensures the end-users learn how to use the system in performing their roles. This can be achieved by ensuring the training material explain step-by-step instructions, so the end-users learn how to use the system in performing their roles.

The timing of training delivery was also shown to be critical, and should be as close to go live as possible for end-user to remember what they were shown whilst being flexible enough to

be able to allow mop-up training courses to account for diary availabilities. In the case of Bradford council an outline of the training milestones was prepared, which mapped out every aspect of the training requirement. This included an indicator of exactly when the key issues of training curriculum, training needs analysis and training material were to be signed off for each release. A training window was scheduled for each release as multiple release dates were set. Furthermore, this research shows that staff need to be segregated into core users and standard users. In the case of Bradford council core users were singled out and supported with additional more detailed training and these individuals were key project users who become champions of a particular area. This ensures that the core users can deliver the benefits in their new job roles and pass on this knowledge. Training for core users must be in line with the role mapping for their specific roles; these members of staff will have different jobs post-implementation and require education in different aspects of the system.

The importance of carrying out training course evaluations was also highlighted. Post-training questionnaires need to be issued to all end-users after their training and refresher courses can be scheduled if issues are highlighted. Cross-referencing client and supplier feedback is an important part of the evaluation process, particularly as it was highlighted that a supplier is actually judged on that training course by the evaluation. Feedback can indicate if the consultants themselves need more training and ultimately improve their training courses.

Post-implementation training:

Bradford council set up a network of transition champions and super users which formed an essential part of identifying and overcoming any resistances. These individuals should be internal staff, because the values of the organisation need to be upheld. Transition champions form a two-way feedback system for conveying the right messages at the right time and promoting the benefits of the system, whilst super users internally disseminate knowledge and address end-user queries. The characteristics of transition champions should include leadership, power, influence and posture as these individuals are considered to be change agents, whilst super users should be those with an aptitude for learning and sharing knowledge. In the case of Bradford council transition champions were appointed very early in the implementation process on a volunteer basis but taking into consideration the characteristics mentioned above. Subsequently, the trainers were appointed and trained. This training was undertaken prior to any end-user training. Only when end-user training was initiated did the search for super users begin. This involved identifying staff members who showed a high aptitude in systems or processes awareness who then became the super users. These individuals received further training, coaching and on occasions early exposure to the

new systems. This training was carried out in conjunction with the general training schedule as the super users needed to be re-introduced into the workforce as first point of contact for system queries to be addressed.

This research also showed that knowledge transfer from the vendor is critical and in the case of Bradford council this was ensured through a train the trainer approach where IBM trainer the Council's trainers.

In addition this research showed that during the exploitation phase, once the system is up and running, it is critical to maintain continual transfer of knowledge from the supplier post go-live. This can happen for a number of reasons. First it is in the interest of the supplier to arrange annual site visits to ensure everything is running smoothly and the system features are being used correctly. At this point a training needs analysis can be carried out to determine if any follow-up training is required. Secondly, the software providers need to provide system patch updates to keep their software solutions fresh and relevant, in line with the fast moving software industry. As part of this service they can offer system upgrade training. Continual knowledge transfer from the vendor post-implementation is assured through the appointment of knowledge workers who are end-users from the client organisation selected to receive the training. Bradford council provided means for new members of staff to learn about the new system processes by providing online training materials for general access and training, but did not support knowledge workers by providing a centralised or functional training support mechanism. The supplier consultant's expressed the importance of continual knowledge transfer as a CSF, as has been shown in literature, mainly for the purpose of avoiding system atrophy.

Chapter 5: Discussion

5.1 Introduction

The current research aimed to identify CSFs for ERPII implementation in CFOs, ERPII systems introduce an element of CRM into systems which were traditionally used for supply chain management. In customer-centric organisations (Galbraith 2005), a successfully implemented ERPII system can have a positive impact on many customer-facing service-related performance criteria. However, there is little research which bridges the gap between CRM and ERPII systems in identifying CSFs for realising the full benefits of these customer-centric systems.

The current research not only identified CSFs which would concern CFOs implementing ERPII but also uncovered at which stages of the implementation life-cycle these CSFs should be addressed. The research findings have allowed for the creation of a critical pathway that CFOs should follow in order to realise the full potential of benefits available from ERPII. To date no research has linked CSF observations with their allocation within the implementation lifecycle.

The focus of the research findings has brought to light the importance of addressing people related issues during ERPII implementations in CFOs, identifying the importance of investing in training and training related issues. This research provides practitioners with standard working practices for implementing ERPII systems or carrying out ERP system upgrades and contributes towards filling a gap in literature regarding training in highly demanding IS.

5.2 Prioritisation of resources for CFOs implementing ERPII

The implementation of ERP software accounts for between 40-50% of the total cost; it is the single costliest portion of an ERP project (Sieber, Siau et al. 2000). Previous research undertaken in standard ERP implementations has shown that most financial resources are allocated into technology and process related issues. The highest proportion is associated with consulting, which accounts for 30%, with hardware and infrastructure of the system implementation accounting for 25% whilst the three areas of training, implementation team and software only account for 15% of the overall cost (Vincent, Ashok et al. 2001). This observation is in stark contrast to the findings of the current research; we observed that opportunities for BR reside within the users of the system and, as such, particular attention should be paid to people related aspects of the implementation. Our findings show that

significant resources need to be allocated into addressing people related issues in a CFOs implementing ERPII. The remaining resources should be allocated equally into addressing process and technology related issues. This research highlights the importance of people related issues and that in the exploitation phase of the implementation, these take priority.

ERPII offers end users the ability to use information in both pro-active and re-active interaction with the customer (Pan and Lee 2003). The current research provides clear evidence to suggest that CFOs should invest most heavily into resources that support the development of the people within the organisation. The lack of commitment towards training is an important aspect which CFOs must address since the end user must be confident in their ability to manage this new technology. ERPII is a highly demanding technology for the user, which requires processes of significance to be integrated into job roles and for this to be strongly communicated to the worker (Boersma and Kingma 2005). Indoctrinating staff to the new ways of an ERP system and subsequently adequately training them to both a level at which they feel comfortable in utilising the system and acting in conjunction with a system, has been shown to be key (Gardiner, Hanna et al. 2002). This could lead to the highly demanding end user being even more demanding of the technology available.

5.3 Critical pathway steps for CFOs implementing ERPII

The current research has identified critical pathway steps for successful ERPII implementations for CFOs. Identifying CSFs at different stages for re-engineering and introducing new ways of working is a methodology used in the EU COBRA project on corporate understanding (Coulson-Thomas 1995). Implementation teams need to understand which CSFs to concentrate upon at each stage. The current research identified that the timing of the allocation of these resources is critical, which to date has not been reported in IS literature.

Planning for an ERPII implementation in CFOs

The current research has highlighted that when planning for the technical requirements, a critical aspect is the careful package selection. Our research reveals that developing new capabilities is essential, which was done by contracting to suppliers who bring specific capabilities and experience. Our research is in contrast to the recommendations of Willcocks and Sykes (2000) who suggest that building on key in-house IT capabilities is the best way to develop new capabilities. To some extent, this is pre-determined by the nature of the vendor selected and for the skills for which they are acknowledged (Karsak and Özogul 2009). In

CFO implementing ERPII this is particularly important as Ranganathan and Brown (2006) show that the highest returns from ERP implementations are achieved by those utilising greater functional and physical scope.

In addition, in planning for a sound IT infrastructure, it was shown to be critical to establish a knowledge transfer system from the selected vendor. Empirical research has shown that achieving knowledge transfer is critical (Brown and Vessey 2003; Wang, Lin et al. 2007). This can be achieved by incorporating it into the contract, and it is particularly important for facilitation and monitoring purposes, which have both been found to be critical factors (Willcocks and Sykes 2000). In forming a bridge between the client's needs and the software capabilities, Chiasson and Green (2007) outline that a key role of the vendors is to achieve a balance between the needs of the clients and specificity of the software. Arinze and Anandarajan (2003) suggest that the key is for the client to detail specific needs of high-level user requirements.

The current research has highlighted that when planning for the process requirements, a critical aspect is preparing for troubleshooting and crisis management, specifically the current research reveals that business scenario enacting is important. Our findings show that this ensures that the go-live is a non-event and is critical for implementations in CFOs. This finding supports the research of Aladwani (2001) who realised the importance of business scenario enacting by developing a model of BR which introduced a formative knowledge aspect, involving an important knowledge formulation phase for identifying, measuring and preparing for the benefits. Lasa, Laburu et al. (2008) also reinforce the importance of tackling BR at the outset of any business restructuring project suggest that front-end operatives should be involved.

In addition, a second critical aspect is establishing the vendor/client partnership. Specifically a collaborative based design between these two parties will guarantee that the system is bespoke and not a standard package. This has been supported in literature, as drawing upon professional expertise has been found to be a critical factor (Beatty and Williams 2006; Finney and Corbett 2007). In addressing the CFA, a collaborative based design involves undertaking a design and finance blueprint process. This aspect is critical in so much that it is one of the very first tasks that should be undertaken when a CFO enters into an ERPII implementation. The suppliers understand the capabilities of the software solution and the implementing organisation knows the requirements of the system. Arinze and Anandarajan (2003) were one of the first authors to tackle the issue of establishing a new organisational process blueprint

from a benefits perspective and suggest a flexible model of integration introducing the concept of job mapping into the process mapping phase, which can only be achieved through a collaborative based design.

The current research has highlighted that when planning for the training requirements, involving many stakeholders, it is critical to represent all their needs in a holistic training strategy. In establishing a training strategy, it has already been shown that management must decide the provision of dedicated resources to the training programme of ERP implementations (Somers and Nelson 2001). However, in planning for the training required for ERPII implementation within a CFO, developing a holistic strategy was found to be critical in our research, so that the training is bespoke for every department. Whilst it has been shown that training strategies must adequately prepare users to be able to collaborate with each other via the system (Kang and Santhanam 2003), it could be argued that training for CFOs is not simply about knowledge accumulation, but has a far more reaching goal, regarding KM.

In addition, a second critical aspect in planning the training requirement is the setting out ways to educate staff in new customer facing business processes. Integrating an element of customer management into the training was found to be critical for CFOs, in so much that it is essential to ensure the trainers themselves are internally appointed, and as such, have experience from across the organisation. This ensures bespoke customer focused training materials are prepared. This finding contradicts the research findings of Woo (2007) who advocates outsourcing to an expert external training provider in traditional ERP implementations. In ensuring training delivery, Bostrom, Olfman et al. (1990) identified that training comes in two forms; learning by doing and learning by understanding, and ultimately this highlights two approaches. Using external professional trainers alludes to delivering learning by doing, whilst appointing internal trainers encourages learning by understanding. It has been shown that assessing employee attitudes and establishing training designed to encourage acceptance is important (Abdinnour-Helm, Lengnick-Hall et al. 2003) and so making the right choice here is essential.

Delivering ERPII implementations in CFOs

A critical aspect in delivering the technology for CFOs is ensuring the ERP system provides a platform on which the CRM based benefits can be delivered. This has been termed customer facilitation, which is important as Siragher (1999) suggests that sales, marketing and customer service departments must incorporate process mapping during the implementation. Our

findings support this contention and build upon the finding of Karsak and Özogul (2009) who recently found that the first step in deciding upon a vendor is for the client to look at its customers' requirements. This is also important for the vendor, as understanding the requirements of the client's customers enables accurate process mapping to be undertaken (Bettencourt and Ulwick 2008). Socio-technological evolution is often overlooked as customisation of ERP systems can be expensive and have system upgrade implications (Shepherd, Clegg et al. 2009).

The current research has highlighted that when delivering the technology required, the vendor/client partnership is critical, specifically stakeholder collaboration is required for CFOs, which would include the system end users, the client project team and the suppliers. Shepherd, Clegg et al. (2009 p97) were the first authors to acknowledge that many ERP implementations offer little benefits to end users commenting that "they should be encouraged to 'pull' these systems into the business, rather than managers 'pushing' them onto the user community" as traditional implementations use vendor expertise to sign off process maps (Akkermans and Van Helden 2002). The role of the internal management information department has also been found to play a critical role in the ERP implementation process (Ho, Wu et al. 2004).

The current research has highlighted that when delivering the processes required, setting clear goals and objectives is essential, specifically it is critical to link the implementation with a vision, such as the wider corporate vision. This supports current understanding in literature; incorporating into the ERP implementation a wider shared and clear vision has been found to be critical in achieving success (Al-Mashari 2003; Finney and Corbett 2007; Sutanto, Kankanhalli et al. 2009). In a recent review of current literature on change management, Sutanto, Kankanhalli et al. (2009) outlined key issues which included mapping out a vision for the future and incorporated a systematic plan for project and change management relating to a road map of the tasks and resources. Establishing a strategic road map towards this vision is therefore essential and Newell, Tansley et al. (2004) suggest that senior managers need to map 'as is' and 'to be' of existing organisational processes and new processes respectively, which has been found to be a critical approach in ERP implementations (Okrent and Vokurka 2004).

The current research has highlighted that when delivering the training, setting the timing of training delivery as close to go-live as possible is critical for CFOs. This finding is supported in literature, as establishing training intervention has been identified as a critical task (Muscatello, Small et al. 2003). Two key variables that influence training performance are general computer

efficiency and task specific efficiency (Marakas, Yi et al. 1998). Determining the competencies of staff members through computer self-efficacy is particularly important (Compeau and Higgins 1995b) as this has been identified as a contributing factor in implementation success (Kwahk and Lee 2008) and to some extent this will determine the length of training required.

Reviewing the ERPII implementation in CFOs

The current research has highlighted the need for CFOs to review new processes so that BR opportunities can be fully addressed. Our findings show that for addressing process related issues, strong inter-departmental communications should be established, which allows real-time feedback to be relayed directly to the project team. This is critical so as to be able to move quickly to deal with any teething problems that arise. This finding supports extant literature which shows that interdepartmental cooperation is an important CSF for ERP implementations (Somers and Nelson 2001; King and Burgess 2008). Communicating to the different stakeholders throughout the ERP implementation is important, yet little research covers the stakeholder perspective in ERP implementations (Finney and Corbett 2007). Indeed, it has been noted that "there has been little research exploring how ES managers' style of communicating with stakeholders and managing conflicts between stakeholders' interests contribute to the success or failure of ES implementation" (Ward, Hemmingway et al. 2005 p99). In preparing a communications strategy, Grant (2003) suggests there must be a coherent communicational plan, particularly between business and IT personnel. Indeed, a critical task is in engaging with the heads of departments directly (Akkermans and Van Helden 2002). Ward, Hemmingway et al. (2005) note that effective communication between groups reduces resistance to change, and Kwahk and Lee (2008) suggest that an organisation's readiness for change is essential in ERP adoption. This is particularly important for the public sector, where there is a culture of resistance to change (Robertson and Seneviratne 1995; Henriksen and Andersen 2008).

In reviewing the new processes established, a second critical task highlighted by this research is to establish cross-functional representation within the project team. This is important as CFOs need to be able to communicate effectively with the affected departments and it allows all relevant departments and services to be considered during the implementation. Literature has shown that team diversity brings the best results (Schneider and Northcraft 1999), and an effective way to achieve team diversity is in cross-functional teams, which bring together professionals with diverse ideologies (Fleisher, Wright et al. 2008). Having cross-functional representation ensures that communications are not misinterpreted and a clear understanding of the feedback can be guaranteed. This finding supports the findings of Woo (2007) who

identified that it is critical for team members to be seconded from the departments affected for the duration of the ERP implementation.

During this stage of the implementation, our research has highlighted the need for CFOs to undertake skills based training. It is already understood that it is critical to ensure all users in an ERP implementation receive training (Somers and Nelson 2001), and that extensive employee education and training is undertaken (Umble, Haft et al. 2003; Ho, Wu et al. 2004). However, the current research identifies that it is critical for CFOs to undertake additional skills based training. This is particularly necessary in order to address new CFA since core training will be targeted. If the organisation has established skills based training which focuses on the new processes, a record can be maintained which quantifies training needs. Training records kept during the implementation process are essential as system utilisation directly relates to system performance (Cheney, Mann et al. 1986). In reviewing and quantifying end-user training, Mehta, Oswald et al. (2007) identified that ESS training was an integral part of the knowledge integration process. One important way to evaluate the progress of the training has been found to be undertaking performance evaluations (Ho, Wu et al. 2004).

The current research found that training course evaluations are critical, specifically, reviewing the training delivered was found to be critical for the supplier organisation. This finding corroborates that of Compeau, Olfman et al. (1995) who acknowledged evaluating end-user training as a CSF for implementation systems. These authors outline a formative training course evaluation appraisal stage, including: the trainees, software, tasks, organisational characteristics, training design, training delivery, and training effectiveness. In addition, using measurable reference points within the training is critical to understand the effectiveness of the training delivered (Devaraj and Babu 2004). Whilst it has been shown that assessing employee attitudes and establishing training designed to encourage acceptance is important (Abdinnour-Helm, Lengnick-Hall et al. 2003), it has not yet been shown that suppliers use feedback from training course evaluations of current implementations to improve subsequent implementations. This research has highlighted that in a wider context, when training course evaluations are undertaken, a great deal can be learned which helps in subsequent ERPII implementations.

Exploiting the benefits of the ERP implementation in CFOs

The benefits of the ERPII system can be realised by exploiting the technological benefits and a CSF found in the current research for addressing this was to assign new responsibilities once the technology is in place. Exploiting the technically delivered benefits requires a detailed

understanding of the system facilitators' working routines, and this process of change management sees new roles, skills and capabilities mapped. Unsurprisingly, resistance has been identified in both changing business processes and mapping employee roles (Thong, Yap et al. 2000; Aladwani 2001), and both tasks must be managed extremely diplomatically. However, understanding users' tasks and needs can be achieved primarily by the project team making adequate time for end users to be involved (Procaccino, Verner et al. 2005). Shepherd, Clegg et al. (2009) identify a link between job impact and user reaction, suggesting that where possible, not too much onus is put on the end user in terms of additional work load. In assigning new responsibilities during an ERP implementation, a few key related factors are well understood such as involving internal staff throughout this knowledge formulation phase (Ho, Wu et al. 2004), an application of which is to utilise end users for advising on job linking activities (Bozarth 2006). Indeed, Beatty and Williams (2006) identify that this type of testing strategy is critical as it can reveal "show stoppers" in terms of their essential data requirements. In addition, decisions on possible ways for restructuring personnel post-implementation must be taken (Mandal and Gunasekaran 2003), and it has been shown that a critical task is to inform users of any job redesign issues concerning the nature of work, enabling them to fulfil their job description (Finney and Corbett 2007).

Our research highlights that the benefits of the ERPII system can be exploited principally through training. One of the CSFs this research identified which was directly related to the success of the training specifically to promote the benefits of the system, through the appointment of transition champions. The appointment of transition champions is critical in terms of avoiding resistance from users. It generates a two-way feedback system which facilitates the promotion of the right messages at the right time. Having a project champion has been widely cited as being a CSF in ERP implementations (Willcocks and Sykes 2000; Nah, Lau et al. 2001; Somers and Nelson 2001; Finney and Corbett 2007; King and Burgess 2008), and empirical research by Akkermans and Van Helden (2002) shows that a critical role they play is in performing effective internal marketing. Markus and Benjamin (1997) advocate change agents, recommending that line managers and IT specialists must take leading roles in communicating change benefits. As such, project champions should not only possess strong leadership skills but be competent diplomats in delivering implementation strategy (Mandal and Gunasekaran 2003). The formal allocation of project champions is critical in the set-up phase (Parr and Shanks 2000) as this enables them to become empowered and disseminate values and assist with decision making. Our research shows that they are essential in the exploitation phase to avoid system atrophy.

It is essential to have the right kind of vendor support to avoid system atrophy, the current research has highlighted that to exploit the benefits from the system it is critical to ensure knowledge transfer from the vendor. Proactive vendors undertake site visits post implementation and offer training on new software updates which may become available. Rodgers and Negash (2007) highlight that knowledge transfer is increased by developing knowledge workers. In current literature there is no doubt that achieving knowledge transfer is critical (Brown and Vessey 2003; Wang, Lin et al. 2007), and this research finding is supported by the important finding of Akkermans and Van Helden (2006) who observed that achieving an exemplary level of vendor support revolves around upgrading training support.

To fully exploit the benefits of the new system it has been found to be critical to ensure the internal dissemination of knowledge at this stage of the implementation. Once the system is up and running, if system atrophy is to be avoided, processes must be in place to ensure that information on how to use the system is not only widely available but that trained staff are on hand to bring new employees quickly up to speed. The appointment of super users is a task which requires significant attention, as super users are an effective solution to disseminating knowledge to end users. Davis, Kettinger et al. (2009) identify that introducing 'IT savvy' users or 'super users' increases the overall satisfaction level of the implementation. Literature shows the appointment of super users to be a critical factor in ERP implementations (Muscatello, Small et al. 2003). The results of the current research supports the use of super users, although highlights that these individuals should see it as a long-term job.

Post-implementation training is essential in an ERPII system, specifically the current research has highlighted that it is critical to create knowledge workers, since these are the individuals delivering the benefits from the system. Ensuring post-implementation training through continual corporate training will support knowledge workers and prevent system atrophy occurring. A structured training schedule is required as often large organisations have a high turnover of staff and training inductions, as well as refresher courses enable specialist training to be delivered on an on-going basis. The process of evaluating the "knowledge worker's role" has been described by Shah, Eardley et al. (2007), who suggest that the main issue for the knowledge workers is to articulate their knowledge requirements, since from this the planning team can prioritise and take appropriate actions. On-going post-implementation training is a key element of this.

5.4 Previously advocated CSFs for ERP implementations

Within the scope of this research, two prominent CSFs found in literature were not highlighted; top management support and project team competence. The reasons for this are discussed below.

5.4.1 Top management support

Top management support has been a widely cited CSF for ERP implementations (Nah, Lau et al. 2001; Somers and Nelson 2001; Akkermans and Van Helden 2002; Brown and Vessey 2003; Woo 2007; King and Burgess 2008; Dong, Neufeld et al. 2009) and is consistently cited as the top most highly ranked CSF (Somers and Nelson 2001; Finney and Corbett 2007). The current research recognises that top management support is critical, however, it identifies that CFOs should pre-define the role of the CEO involvement, so as to maximise their political influence and their role in creating a supportive environment but avoid derailment due to detailed operational involvement in project implementation.

Top management support is critical for initialising the implementation project and keeping it on track. However, the nature of the support should not extend to CEO involvement in the details, which could be counterproductive, and there is no need for them to play an operational role overly interfering in the critical pathway steps of the implementation. Whilst a top down management philosophy has been identified as being critical (Ward, Hemmingway et al. 2005), the current research suggests caution in taking direction from the CEO as they may not be close enough to the operational side of the business and may provide recommendations which could potentially derail an implementation. This is in contrast to the findings of Sarker and Lee (2003) who identified that strong and committed leadership at the top management level is required throughout the entire lifecycle, for success to be assured. This could be explained by the findings of Law and Ngai (2007) who identified that the types of support offered by top management extend widely, and the awareness of the role they play is critical; the CEO must be aware of the role they must play during the implementation. These activities are broadly described as including: offering their political persuasion, influential skills, providing financial budget assurances and other resources as required (Soja 2006; Sutanto, Kankanhalli et al. 2009). The current research has identified the CEO as being "non-detail guys" and as such, the type of support required from the CEO could potentially be kept to delivering political support to the implementation. This is reinforced by the fact that CEO commitment has been cited as being critical post implementation (Yu 2005).

5.4.2 Project team competence

Project team competence is consistently cited as one of the highest ranked CSFs (Somers and Nelson 2001; Finney and Corbett 2007). In selecting individual members of the project team each member should be chosen on the basis of the best performer and should have a background of accomplishments (Cliffe, Champion et al. 1999). Research by Barreto, Barros et al. (2008) highlights the importance of two key criteria which are education and experience. Umble, Haft et al. stress the criticality of having "a great implementation team" (2003 p245), simply due to the scope of skilled activities required. However the current research shows that the suppliers do not always have a choice of who they work with and have become aware of the 'skills gap' attempting to bridge this gap through improving the skill set of their own consultants. This is consistent with the finding of Wang, Lin et al. (2007) who suggest that firms should select competent consultants with team member skills and a team ethos. In addition, Verville and Bernadas (2005) advocate a partnership approach considering the complexity of implementing an ERP system. In any vendor/client relationship, knowledge transfer has been shown to be critical (Lehtimäki, Simula et al. 2009).

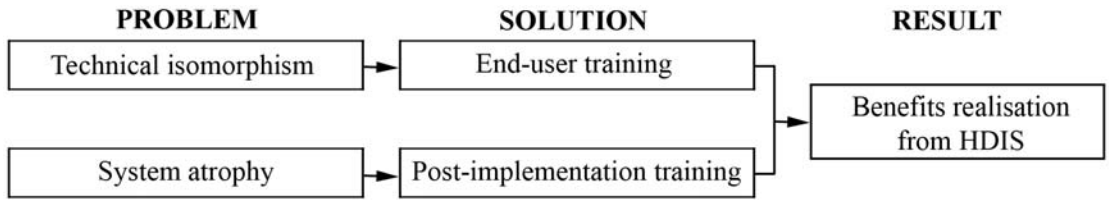
Organisations have found it difficult to establish the most effective processes for achieving the desired benefits in ERPII implementations (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005). To overcome technical isomorphism, it is essential to develop a good working relationship with the supplier. Failed ERPII implementations have occurred on account of organisations not achieving this (Sharif and Irani 2005). Soja (2006) identifies that differences in attitudes exist between the client personnel and supplier consultant personnel during an ERP implementation. The current research corroborates this finding advocating a "One team one plan" approach. One team one plan ensures that the technical capabilities and process requirements are aligned.

5.5 The importance of training for highly demanding IS

Literature shows that ensuring all users in an ERP implementation receive training is critical (Somers and Nelson 2001), as is undertaking an extensive amount of employee education and training (Clegg, Axtell et al. 1997; Umble, Haft et al. 2003; Ho, Wu et al. 2004). The current research shows that apart from end-user training, post-implementation training is also critical for ERPII implementations. This research contributes towards the realisation that highly demanding IS require actions to be taken to avoid technical isomorphism and system atrophy.

Training during implementation of highly demanding IS have been shown to involve three key stages; the initiation which involves preparing for the training, the training and learning which involves conducting the training and finally the post-training which involves all aspects of evaluating the training undertaken (Compeau, Olfman et al. 1995). Literature also shows that user participation in the training process is critical (Verville and Bernadas 2005). Technical isomorphism and system atrophy are two important problems that can arise from highly demanding IS that have not been implemented successfully and the current research shows that steps can be taken to overcome both through investing in training (Figure 16). It is therefore necessary to invest in both end-user training and post-implementation training.

Figure 16: Training for Highly Demanding IS



Organisations have found it difficult to establish the most effective processes for achieving the desired benefits in ERPII implementations (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005) which has been termed technical isomorphism (Batenburg, Benders et al. 2008). ERPII implementations have failed on account of organisations not achieving this (Sharif and Irani 2005). Our findings suggest that technical isomorphism can be avoided through investing in end-user training. Highly demanding IS rely upon knowledge workers being able to maximise business benefits and organisations need to establish a strong relationship between IT systems and their knowledge workers (Dehning and Stratopoulos 2003), which according to the current research can be achieved through training.

Organisations can further maximise the opportunities of the system by preventing system atrophy from occurring and this research highlights the importance of investing in post-implementation training. System atrophy occurs when the organisation does not maximise the opportunities of the system and many features are left unused or ignored. Existing staff may have tendencies to re-introduce old working practices and legacy system if available, and new staff members may not be trained by the previous operatives. To avoid system atrophy, the client needs to have in place a formal process of continual learning for highly demanding IS.

Chapter 6: Conclusion

6.1 Introduction

In undertaking the current research, one overriding research question has been set. This was specifically set out as there was a high occurrence of failure in CFOs implementing ERPII. In answering this question, two seperate research objectives were prepared. This chapter has been set out to determine if these objectives were met.

6.1.1 Achieving research objective one

The first research objective set was:

> "Develop a CSF model to investigate resource allocation during ERPII implementation and formulate an understanding of these in terms of benefits realisation"

The current research has developed a model which has successfully identified the resource investments involved in ERPII implementations. The model created was the Combination Model which has been successfully used to reveal CSFs both in terms of their resource investments (people, process and technology) and implementation lifecycle stage (planning, delivery, review and exploitation).

We can conclusively state that the current research has achieved the objective of creating a CSF model by which to evaluate CSFs in terms of benefits realisation.

6.1.2 Achieving research objective two

The second research objective set was:

> "Refine a framework of CSFs based on different stakeholder perspectives to gain an understanding of how resource allocation contributes towards benefits realisation"

The current research has used a framework which incorporates the views of key stakeholders participating in the ERPII implementation process. The refinement process involved two stages of refinement involving stakeholder perspectives from both client and supplier organizations.

The stakeholders involved in this research consisted of four key project team members from the client organisation and seven consultant practitioners from supplier organisations. The refinement of this framework has been achieved by initially considering the views of the client organisation to determine their view in regards to how the resources applied contributed towards benefits realisation. Subsequently, these views were presented to supplier organisations to establish a holistic appraisal of CSFs allocation in terms of delivering BR.

We can conclusively state that the current research has achieved the objective of refining a framework CSFs based on different stakeholder perspectives in delivering BR.

6.1.3 Answering the overriding research question

The overriding research question set was:

> "What are the CSFs contributing to a successful ERPII implementation in a CFO?"

The current research has highlighted 19 specific CSFs to deliver a successful ERPII implementation in a CFO.

We can conclusively state that the current research has achieved the overriding research question. This was achieved by reaching both research objectives.

6.2 The contribution

The main contribution to knowledge from the current research is the identification of 19 (currently existing) CSFs required for the successful implementation of an ERPII implementation within CFOs. In so doing, this research draws attention to those factors that are critical for other types of implementation, but which are not critical in this particular type of implementation. This contribution will make significant savings during the implementation process, enabling organisations to invest in only thoes resources which contribute towards BR.

A second key contribution is the 'phasing of CSFs', in that the allocation of the correct resources during the implementation must be undertaken in specific stages of the implementation lifecycle. The current research has set out 'critical pathway steps' which allocates the 19 CSFs into their respective place within the implementation lifecycle. This contribution will assist in the effective application of the required CSFs, enabling them to be

allocated only when they are required and not at a position within the implementation lifecycle where they have little impact.

The final contribution of this research is that CFOs implementing ERPII must not underestimate the importance of training during the implementation process. Specifically, actions must be taken to address pre and post-implementation training requirements. The current research identifies that in ERPI implementations in CFOs 'people' related factors require the most attention, with up to 50% of resources being allocated into this area.

6.2.1 The phasing of CSFs

The criticality of the timing of resource allocation has been identified in this research, and this contribution has allowed the formulation of a critical pathway that CFOs are suggested to follow in order to achieve BR.

To our knowledge, previous studies have simply provided a list of CSFs for practitioners to undertake and this is the first time that CSFs have been allocated to different stages of the implementation lifecycle. This new perspective provides practitioners working within CFOs with new recommendations for implementing ERPII systems or carrying out ERP system upgrades. Allocation of resources at the correct time in the implementation will prevent the high incidence of failure to deliver BR. By allocating CSFs more efficiently, a more effective system will be achieved.

The introduction of the 'phasing' of CSFs may have wider consequences within the field of IS research. There is certainly feasibility in applying this technique to assist with other IS implementation projects.

6.2.2 The importance of training for CFOs implementing ERPII

The adequate delivery of training in CFOs implementing ERPII is a critical element of BR. Literature shows that training attracts the smallest proportion resources in traditional ERP implementations. However, this research shows the critical role training plays in this type of implementation. End user training is required to get the system up and running, whilst post implementation training is required to ensure the system benefits are continually delivered.

Training should be delivered throughout the implementation lifecycle. Undertaking end user training requires key activities to be undertaken in the planning, delivery and review stages of the implementation lifecycle. However, post implementation training is required in the exploitation phase of the implementation lifecycle. End user training is required to prevent technical isomorphism and post implementation training is required to prevent system atrophy occurring.

6.3 Practical implications

The practical implications presented here are designed to guide practitioners in future ERPII implementations within CFOs.

There are considerable differences in regards to the resource investments required for ERPII implementations in CFOs and those of traditional ERP implementations. The current research has identified that it is not possible to use existing best practice for ERP implementations when approaching an ERPII implementation.

This research has identified 19 CSFs and as such CFOs implementing ERPII can free up resources by not investing in unnecessary factors, which ultimately will not contribute towards BR. The practical relevance of this is that organisations can allocate resources far more efficiently.

The introduction of the 'phasing' of CSFs in ERPII implementation means that resource can be applied at the specific time of requirement. This ensures that the implementing organisation uses the right resources, at the right time and in the right way. The practical relevance of this is that organisations can allocate resources far more effectively, ultimately having more impact.

The adequate ivestment in training in HDIS will ensure the full benefits of the system will be realised. A greater appreciation of the demands placed upon end users using these systems will bring about a cultural change in the way that these systems implemented.

6.4 Limitations and further research

6.4.1 The limitations of the research

Within the scope of this research only CFOs implementing ERPII have been evaluated and as such the findings can only be applied to this specific area of ERP implementation.

This research did not look at wider issues of implementation initiation or organisational change and the findings do not represent a way to address these issues.

Methodological limitations

The use of CSF analysis has meant that any areas of failure have not been addressed. The approach used overlooks the opportunity to learn from failure, however the benefits of learning from successful implementations makes this an invaluable tool in IS research (Lyytinen and Mathiassen 1998). It can be used to clearly diagnose problems and provide lessons learnt for future implementations (Lyytinen and Robey 1999).

Analysis and interpretation of literature

Whilst a full review of the literature was undertaken, only journals published in the English language were reviewed. There were some limitations in the process of reviewing journals, the main one being that in the few instances when the full article was not available, the context of the publication findings were asserted as clearly as possible by reviewing the freely available abstracts.

Interview scope

There were some limitations in regards to the respondents chosen to participate in so much that only UK establishments were involved. This limitation was set as no interview could practically be set out of the UK due primarily to financial and logistical constraints.

Data analysis

No detailed quantitative statistical analysis was undertaken in analysing the research findings. Meredith (1998) outlines that there is little benefit in adopting statistical analysis to single case study research, noting that the richness of data is key for achieving rigour and extensive qualitative analysis. Heat mapping was used as the primary quantitative analysis and was done so to provide a visual representation of all the factors evaluated.

Interpreting the quantitative data did present a few minor limitations. Primarily the client responses did not hold the same weighting as the supplier responses. There was a ration of 1:7 which resulted in one scenario where 'criticality' of factor could be overlooked. Where factors were important to the client but not regarded as critical by the supplier consultants, these factors were not classified as being critical due to the cumulative nature of the responses in defining CSFs. This limitation has been identified and where possible accounted for.

6.4.2 Further research/implications

The consideration of application of the findings towards the implementation by public and private organisations could be researched further. As public and private organisations do not always operate under the same cultural business settings, as highlighted in the differences of perspectives analysis between the client and the suppliers, a refinement of the critical pathway stages could be re-evaluated in terms of public and private organisation implementation best practice.

Further research is also required for a greater understanding of the role of training in tackling technical isomorphism and system atrophy if the full benefits of HDIS are to be realised. The current research has provided a platform for this area of research to be developed further and highlighted an important area of future research opputunities.

APPENDIX

Appendix 1: CSF 1: Develop a holistic training strategy

CSF: ***An integrated team (who knew the importance of end users) decided upon the final training strategy.***

CSF Keyword: Develop a holistic training strategy.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The training strategy document is an important tool for delivering the training for an ERP implementation. From the observations made during the project team placement, it was very apparent that the training strategy played an important role in the implementation. Within Bradford council, the main training objective for the ERP project seemed to be to create a training programme that delivered an effective ERP deployment across the Council. In achieving this, senior management were prepared to collaborate with many stakeholders and translate this into value adding services to the citizens of Bradford. A great deal of emphasis was placed on delivering access to the right knowledge at the right time, to deliver a "blended learning" environment. It seemed that end users were heavily engaged in this process and had been for a substantive period of time.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

ERP Training Strategy Document

During a four month period from the 1st February until the 17th May 06, ***a training strategy document involving a total of five draft revisions, was prepared by an integrated team*** of four key staff members (Keith Hayes – Bradford ERP Project Lead, Alan Thurlow - IBM ERP Lead, Linda George – Bradford Bradford-i Programme Training Manager and Rickey-Dean Wasson - IBM Bradford-i Programme Training Manager), which contributed towards an holistic benefits outlook.

ERP Training Strategy Document Revision History

Table 39: This document was prepared by the following people:

Version number	Date	Summary of changes	Revision marks
0.1	01/02/2006	Max Hudson – draft for review	None.
1.0	20/02/2006	Alan Thurlow/Linda George review comments	Yes
2.0	27/02/2006	Keith Hayes minor revision to section 3.2	Yes
3.0	27/03/2006	Added Annexe A to detail de-scoping of materials	Yes
3.1	08/05/2006	Added Annexe B to detail changes to delivery approach	No

Table 40: This document was approved by the following people:

Name	Role
Keith Hayes	Bradford ERP Lead
Alan Thurlow	IBM ERP Lead
Linda George	Bradford Bradford-I Programme Training Manager
Rickey-Dean Wasson	IBM Bradford-I Programme Training Manager

Table 41: This document was distributed to the following people:

Name	Role
Sindre Skaret	IBM Bradford-I Programme Training Manager
Juliette Moncur	Bradford ERP Change Management Lead
Lucie Butterworth	IBM ERP Change Management Lead

Source: Internal Document Ref - Bradford Council ERP Training Strategy Document ERP-R1-3-19

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Bradford Council had pre-prepared holistic training remit before the appointment of the training manager. This encompassed all of the key tasks that were required within the time frame work laid down. The role of the training manager was to assess the practicability of the tasks outlined and where necessary, make valuable contribution.

Regarding developing a holistic training strategy, Linda George, the Head of Training commented **"So the strategy had already been written by the IBM training manager. I had a lot of leeway to implement my own vision when I took on the role. I put in a more detailed training plan. I had more influence within that training plan, but it had to still link back to the training strategy"**, Linda went on to say that "Developing an holistic training strategy was very important".

This potential CSF was accepted upon prompt. To some extent the training materials had been prepared by the vendor and only modified by Bradford Council. However, it was stated that the holistic strategy was very important.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that a holistic training strategy is critical (upon prompt), six of the seven consultants interviewed agreed with this conclusion. Specifically this aspect of the research found that the training materials are often prepared by the supplier and only modified by the client. Dominic Rea strongly reinforced this point, commenting that **"we do this collaboratively with the client"**, whilst Simon Hulse said **"We would take standard documentation, we would then bespoke each section for each department, each department would then sign off on those training notes through the use of the super user. The super user would identify whether we are missing any section and it is just a cyclic process then"**. Neil Rushby reinforced this point, suggesting that the supplier works in an advisory capacity. Hamid Aghassi strongly refuted the idea of the client preparing their own training strategy document, saying **"If their training view was so good, why do they need you? [The supplier] So why don't they do it themselves? You could say that they don't have the management capability to do it…"**. Wes Simmons agreed also that active involvement was critical, saying **"as part of the project delivery process we will encourage the customer to do a training needs analysis and we help them structure that"**, explaining further that **"we try to get involved in that because if the customer gets that wrong and the project failed, it will still be our fault"**. In fact it was only Ian Farrar who said that developing an holistic training strategy was not a critical task, saying **"This is a one**

way street" and further going on to say **"It would be hard to put a manual together for ERP"**, suggesting that some suppliers would rather keep at arms length from developing a training strategy.

SUMMARY OF POTENTIAL CSF

Table 42: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted upon prompt	1
Consultant	6 Agree 1 Rejected	6
	Total	7

Appendix 2 CSF 2: Integrated customer management training

CSF: All staff were trained in customer management within their discipline.

CSF Keyword: Integrated customer management training.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The training strategy was not implemented by an appointed IBM representative, instead the Head of Training within the project team (Linda George) took personal charge, overseeing important aspects such as train the trainer. The important issue here was that the training reflected the vision of the organisation. At this point, great emphasis was put on application of the system for meeting the needs of the residents of Bradford.

The appointed trainers were all internally recruited and had experience from across the Council. From speaking to these individuals it was apparent that this was to ensure each trainer knew the requirements of the Council in delivering the highest level of service to the citizens of the community and the aspirations of the new ERP system. Training undertaken within Bradford Council was not outsourced in the appointment process, internal staff members were used as trainers. A decision was taken not to recruit highly skilled external professional training personnel to deliver the training. The important issue here was that knowledge of council procedures took precedence over training experience.

IBM delivered pre-prepared training materials covering the entire spectrum of subject matter, each were reviewed by the trainers to ensured that the training materail was appropriate for delivery. This process involved amending or rewriting course material and then subsequently returning it to IBM for the changes to be incorporated, this was then sent back to the Council ready for delivery.

A point of interest is that to achieve integrated customer management training, the trainers were all Council staff and this was important as only in this way could acceptance testing be

truly accurate, as a non Council trainers would not have the specific understanding to achieve this. Internally recruited trainers have the advantage of bringing with them the cultural understanding of the organisation, and ultimately the aspirations of the system performance. Re-enforcing this point, is that fact that the head of training took the trainers through their "training the trainer" program. Here, it is clear that the advantage of recruiting professional outsourced trainers does not outweigh the advantage of the cultural understanding of the operative. It is therefore better to train the right philosophy as well as possible, than to deliver the wrong philosophy to an exceptionally high standard. In order to overcome the shortcomings of not having professional trainers, the trainers worked closely with the subject matter experts and wrote up their own training material. This action ensured that every function within the council received specifically tailored training material, relevant to delivering the optimal performance. Re-enforcing this point is the fact that the Council were prepared to pay a high price to ensure the subject matter was perfect. This occurred, despite the extremely tight timescale, where training material was sent to IBM in Belgium for appropriate e-learning materials to be prepared in time for the training delivery. A process of dry runs was used to ensure the material was as good as it could be.

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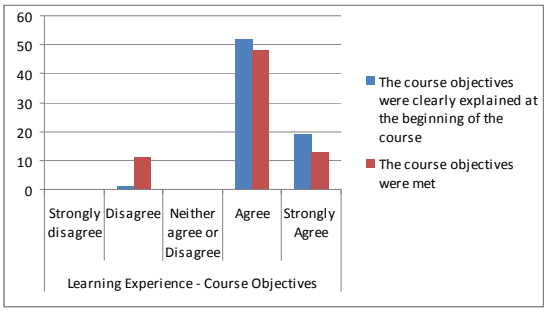
End-user Feedback

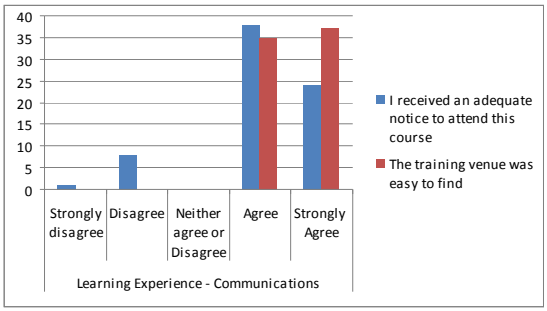
Sample evaluations were taken (26/01/07) to assess the quality of the course objectives. These identify the extent to which customer management issues were incorporated into the training delivered. In addition the e-learning courses were also highly tailored for the needs of the attendee depending upon their functional needs.

Figure 17: Integrated Customer Management Training

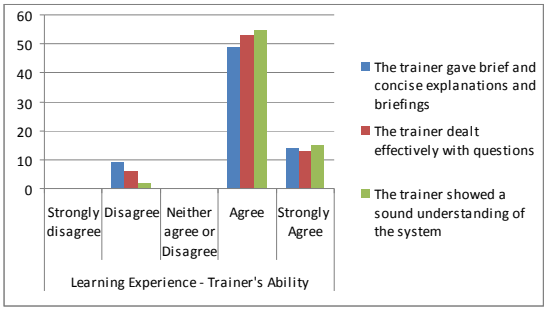
Evaluation of Course Objectives



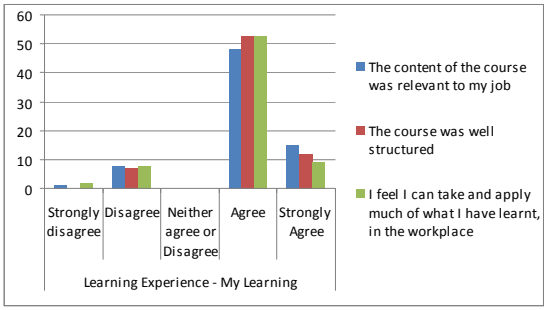
Evaluation of Training Communications



Evaluation of Trainer's Ability



Evaluation of My Learning



Evaluation of Training Environment

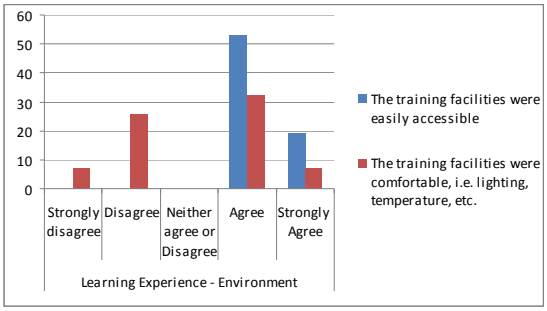
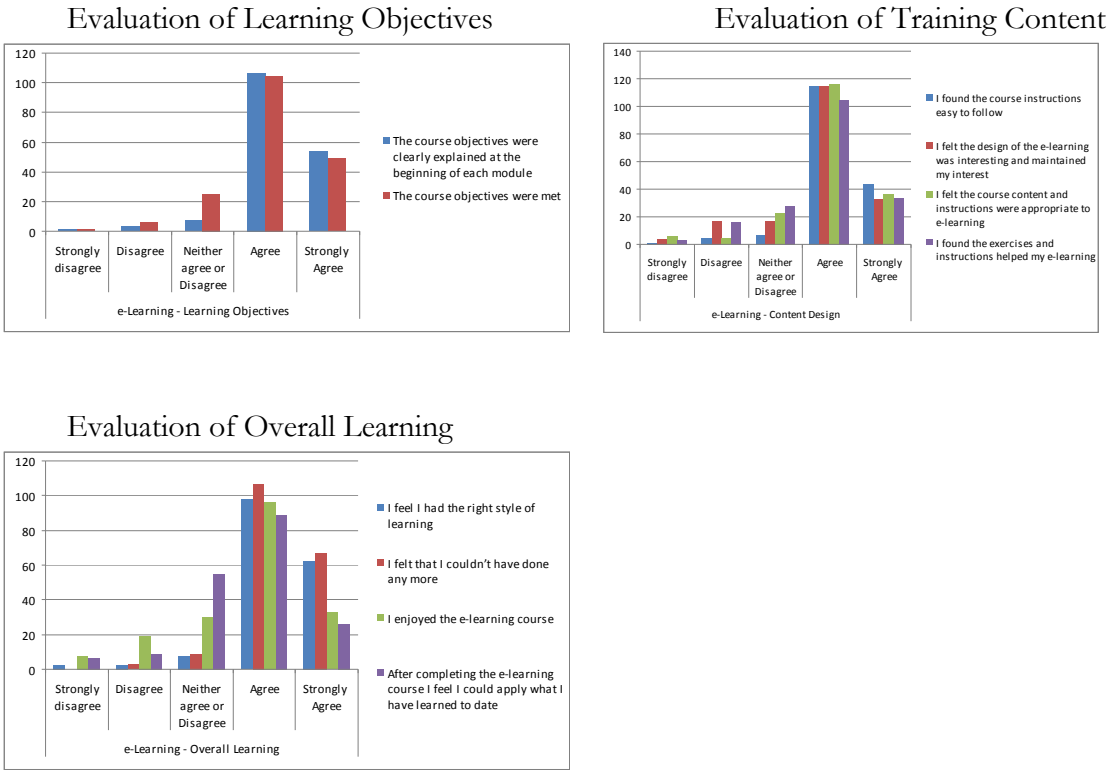


Figure 18: Tailored Individual e-Learning Training Course Materials



All staff received an element of customer management within their discipline as this had been pre-prepared and practiced by the trainers ready for delivery. Each trainer knew the requirements of the course content as all subject matter was reviewed by the trainers to ensure that the training materail was appropriate for delivery. When asked "The course objectives were clearly explained at the beginning of the course", 98.6% of the respondents either agreed or strongly agreed. In addition when asked "The course content was relevant to my job", 87.5% of the respondents either agreed or strongly agreed.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Bradford Council **undertook significant efforts to tailor individual training course materials**, this utilised the experience of the trainers (who were all Council staff) to ensure the delivered training would be effective in delivering the benefits of the system.

The Head of Training, Linda George commented that **"Trainers were involved in user acceptance testing. The trainers were all council staff. I took them through training the trainer because some of them had never actually delivered training before... the trainers worked alongside the subject matter experts, of that release and whilst working through that they'd start writing the training material"**.

In delivering the training, Linda George commented that **"I would say that because the schedule was so tight, what we ended up doing was just delivering what they absolutely must know"**.

To ensure the training was appropriate, Linda George commented that **"We did collect users' reactions towards the system, we did on the evaluation results. We always looked at what people said…That's why we did dry runs, in fact with the e-learning, we did get some end-users in to go through and give us feedback. We fed that back to Belgium, who took that into account, though we had an impossibly tight timescale to make improvements... In fact some of the information had been sent to Italy and India, then when it came back to us we would have to quality assure it. But the tight timescales made it so they had to be ready on time for use"**. Linda George stressed the importance of this, saying **"The subject matter experts dealt direct with IBM in Belgium, so they sent the materials over, and IBM converted it into the e-learning and we had to pay for that service. This is why it was so expensive... We had training materials, then we did dry runs. So they delivered a dry run, with some experts to identify any improvements they needed to make"**.

In summary, Linda George acknowledged the importance of this prospective CSF outright without a prompt of the keyword. Noting the time, effort and money invested in this area. Particular attention was paid to several key issues, these were ensuring the content of each training course was relative to their job, ensuring the structure of the course was clear, the course objectives had been met and if they felt they could take away and apply what they had learned.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study revealed that tailoring the training delivered to make this specific for the user, i.e. introducing customer management, was critical. This was reflected in the views of the consultants with all seven interviewed agreeing this was critical.

There are many options for training delivery, and Dominic Rea makes the point that **"Some of the training is delivered before deciding which way to go"**, describing this part as educational, saying that **"our processes, and our education at this point is to show [the Client] the way our software works, and to provide [the Client] with opportunities for thinking bigger and wider than [they] currently do"**. In fact, in terms of introducing

bespoke training, Dominic went on to say **"user training, which comes later on is designed around the particular processes which have been agreed"**, summarising the whole training process as being **"education and training are about delivering specifics to [the Client]. The education is about showing different ways [the Client] can do things, but the bespoke training is then based on an intermediate step of extensive consultancy, to agree exactly how [the Client is] going to use the software"**.

Whilst standard training would often be offered, Hamid Aghassi commented that **"it wouldn't be standard training for everyone"**, describing that **"you give individual bespoke training to people who are performing a particular function"**. This is a point that was re enforced by the views of Simon Hulse who explained that in their organisation **"each section [of the training] has been tailored to the department that it is aimed at"**. Ian Farrar also described a situation where this bespoke training was initiated from the Supplier, explaining that **"the training is all done after the business process management exercises. So we would learn about the business, in terms of business process mapping and then we would map their business processes to our software"**, going on to explain that **"every training is different to every customer"**. Neil Rushby agreed with this point, commenting that **"the training courses we provide are bespoke"**, explaining in further detail that **"we tend to do one on one workbench training with the user, going through the specific processes with them, building the solutions and training them as we go"**. When asked for the specific details of this, Neil explained that **"the consultants that take the lead on the project do the customer training with them, so they are building the solution. They have already got an idea of the solution in mind and are building the training around that solution"**. However, Stephanie Snaith contradicted this approach, suggesting that **"end-user training is often done through the project team, rather than the vendor"**, when asked the reason for this Stephanie explained **"super users would bring their experience the training, sorry their education, to understand the different aspects of the system. We would then go through the workshops to determine how they were going to do it [operate the system], they would then sign off the processes"**, a point reinforced by Wes Simmons who said **"we will train super users, and then they would then go and train their staff depending on their organisation"**, describing that **"they [the super users] would take our materials and bespoke them"**, explaining that this is necessary because **"the key thing is that you are not training them how to use a system, you are training them how to operate their business procedures"**.

SUMMARY OF POTENTIAL CSF

Table 43: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Agree outright	1
Consultant	7 Agree 0 Rejected	7
	Total	8

Appendix 3: CSF 3: Undertake cost benefit analysis

CSF: The training evaluation was via a cost and results based analysis.

CSF Keyword: Undertake cost benefit analysis.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council ***evaluated several training methodologies*** for their advantages and disadvantages***. Meetings were arranged to discuss each training methodology in terms of their cost and effectieness in terms of delivering appropriate services to the Citizens of Badford.*** The preffered method of delivery was Classroom based training; this had the benefit of face to face interaction with trainers that were themselves Council staff members, which facilitated greater interaction and understanding. This approach was complimented by highly tailored supporting handouts. This approach enabled a high degree of focus and as such individual learning styles could be accommodated. However, the appointed trainers varied in quality and there was an issue of higher cost combined with logistical complications of arranging the training to 6000 staff members. Online help was used as a secondary back-up mainly because it was considered to be one of the most user-friendly options, could deliver information just in time and was inexpensive. However, this was a high maintenance method as it required ongoing development by internal staff. Extensive efforts were placed into liaising with IBM to prepare tailored e-learning material which was relevant.

All options had been evaluated, classroom based training had the benefit of face to face interaction and was complimented by supporting handouts, enabling a high degree of focus and as such individual learning styles could be accommodated. However, the appointed trainers varied in quality and there was an issue of higher cost combined with logistical complications. Quick reference guides were identified as being the least expensive to develop and were readily available, these also benefited from being self training. However, there was a high risk of users rejecting this method and it was difficult to assess the effect towards users. Sandbox training environment was the closest thing to a real live system available, testing on this had the benefit of first hand interaction and it was user friendly and inexpensive.

However, as the live system was constantly being developed it could never truly map the live system and so caused confusion to end-users. Online help was deemed to be the most user-friendly; it could deliver information just in time and was inexpensive. However, this was a high maintenance method as it required ongoing development by internal staff. Finally, one to one and group training was evaluated, here it was recognised to be high knowledge retention and a stimulating learning environment. However, this was time consuming, particularly the one to one training element and it was one of the most cost ineffective approaches.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Undertake cost benefit analysis

There are many methods of training delivery available. The following have been identified as being most appropriate for Bradford-i ERP:

Table 44: Training Delivery Methods

METHOD
• Classroom based training; • Quick reference guides; • Sandbox training environment; • On-line help; • E-learning; and • One-to-one or group training.

The use of computer training rooms in which users travel to a central training location for computer training. Classes could be held in a CBMDC property or off-site. However, a significant cost is associated with having training off-site.

Table 44: Classroom Based Training

Advantages	Disadvantages
• Face to Face interaction comfortable and preferred by large population of user community • Able to prepare training documentation quickly with comparatively low cost • Fewer distractions and greater focus for the users • Able to respond more quickly to individual learning styles	• Standards may vary due to different trainers • Room availability could drive up costs • Logistically complex, with size and duration of the Bradford-i programme • Expensive • Delivery resource intensive

Short guides will provide step-by-step instructions on how to use the new system. The end-users would learn critical new system tasks from quick reference cards. This option includes no facilitation by either trainers or computer-based training.

Table 45: Quick Reference Guide

Advantages	Disadvantages
• Least expensive to develop • Available quickly • Self training • Learn as you go • Learn only what you need	• Higher risk of frustration and possible rejection of the programme if not supported by other communication and/or training • Less easy to check learning transfer at point of development • Not personalised • Only used in live production system

A sandbox environment is a training environment where users can complete training scripts. The environment will be a stand alone system which can mirror the production environment, but will not contain all its transactional and master data.

Table 46: Sandbox Training Environment

Advantages	Disadvantages
• At this point, environment and scripts already completed • User-friendly • Self-paced • Inexpensive • Hands-on experience • Exposure to SAP look and feel	• Ongoing maintenance • Different processes • Detailed customisations • Not necessarily exact configuration of production system

Online help gives the end-user online documentation of particular system tasks and processes. This can either be context sensitive to the transaction of which a user is in, or it can be a static database of all training materials.

Table 47: Online Help

Advantages	Disadvantages
• Based on BPP documents • User-friendly • Just in time information • Inexpensive • Completes the learning experience	• Ongoing maintenance • Development Required

One-to-One or Group training is face-to-face training between end-users and experts. This would take the form of floor-walking by trainers and super-users.

Table 48: One-to-One or Group Training

Advantages	Disadvantages
• High knowledge retention • Stimulating learning experience	• Time consuming to train one person at a time • Cost ineffective to have one expert busy with training of multiple users

Source: Internal Document Ref - Bradford Council **ERP Training Strategy Document ERP-R1-3-19**

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Despite this extensive pre implementation evaluation planning, a post implementation interview with Linda George, the Head of Training, showed that this CSF was in actual fact, not critical. Linda commented that **"No cost based analysis was undertaken, but this was discussed at the time. Were we getting the right number of trainers, whether we could bring in experts…"**.

This potential CSF was deemed to be rejected on account that although discussed, Bradford Council did not undertake this activity. Considering the ERP system was successfully implemented without it, this validates the decision.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that there was little need for applying any kind of cost based analysis towards the training requirements, which is a finding, on the hole that is verified by

the feedback from the consultants, with four of the seven agreeing this was not critical. Wes Simmons believes that **"it is not on a cost benefit analysis, it is on an analysis of get the training done"**, explaining that **"typically it is usually time constraints, and if it is time, then if you start worrying about the costs as well, then you will just not get it done"**, explaining that **"So what you might have to do is go round to five regional offices training one or two people at a time to get the training done. That is not the most cost effective way of doing it, but it is the right way"**. Simon Hulse advocated bringing different departments online at different times in order to ensure everyone received classroom training, saying **"If we had 6000 user, we would immediately say we can't train those in classrooms all in one go. So we would break it down into the departmental level and structure our implementation into whether we could bring departments online, at different milestones"**. Stephanie Snaith also made the important point that **"There are not that many range of options really, here or at the Client site"** and so highlighting once again the preference to use classroom based training, whilst Dominic Rea raised the point that **"This is probably an academic approach"** suggesting that in practice it is difficult to implement. However, in contrast, Ian Farrar did make the case for offering options to the Client regarding their training options, saying **"Yes, we can do the training at their premises, at a hotel, conference centre, our premises, it differs each time"**. In addition, Hamid Aghassi suggests that **"Classroom based training and sandbox are not mutually exclusive"**, explaining that **"if you want to go live with a system you have got to allow people to do things themselves, and that is through a sandbox"**, going on to say **"They will pay the price if they don't incorporate different training methods such as sandbox"**.

SUMMARY OF POTENTIAL CSF

Table 49: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Rejected	0
Consultant	3 Accepted 4 Rejected	3
	Total	3

Appendix 4: CSF 4: Receptive training approach

CSF: A pre staff survey of all 6,000 staff was undertaken.

CSF Keyword: Receptive training approach.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

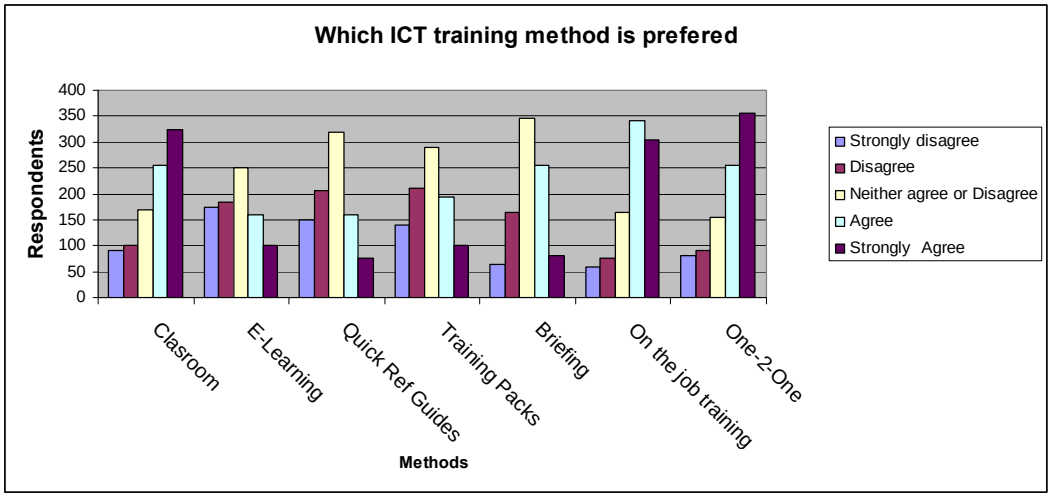
The Bradford-i training team undertook a survey in October 2005 to determine which training method Bradford Council staff preferred in the process of ERP implementation. This information was readily available during the implementation and where appropriate, it was evident this feedback had been incorporated.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford Training Method Evaluation

An evaluation of each training approach was undertaken, in total, over 6,000 employees were surveyed (17/10/05), with 980 respondents (16%).

Figure 19 Training Method Evaluation



Source: Internally Undertaken Bradford Council Survey

To undertake the task of outlining training approaches, ***Bradford City Council undertook a pre staff survey regarding training*** in October 2005, this was to determine which training method their staff preferred. Of the 6,000 employees surveyed, 980 responded (16%) and from the results obtained the following observations were made: on the job training was the most preferred, with 67% of respondents selecting "Agree" or "Strongly agree", one-2-one training was second with 64%, and classroom training was the third most popular option with 61%. The least preferred training methods were e-learning, quick reference packs and training packs. As a direct result of the pre training survey, Bradford Council took the decision to utilise super users to assist with on the job training, along with the introduction of a help desk to provide instant support. All co-ordinated training was built around classroom based training that integrated a personal one-2-one approach in the session, these were kept to small class sizes of less than 12 people. In addition it was decided to only provide hard copies of training materials and quick reference guides after the training had been delivered.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

During the post-implementation interview, Linda George, the Head of Training commented that **"To be honest, this was dictated by the schedule. We did a training needs analysis, a pre survey. In my personal opinion, I am not sure how useful this was, because training needs analysis was purely around people's experience at IT training. I suppose it made us think a little bit about who would be training some people, who might not have any IT skills. Because with the ESS side and MSS side, covering all staff. There were some staff who never actually use PC's. I never really looked back on the training needs analysis. It made you realize that there were departments within the Council that don't have IT skills and maybe we might have made a presumption, as we feel we are all office based and forget that there are dog wardens, and bin men and everybody else"**.

This potential CSF appears to be more of a 'sup ferrules task' to the implementation practitioners, particularly given the tight schedule of the training delivery. This appears to be a knowledge delivery process as opposed to a knowledge formulation process and as such appears not to be critical.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that there was little need for introducing a receptive training approach. This is a view that is predominantly reinforced by the views of the consultants, with five of the seven consultants rejecting this CSF. Hamid Aghassi explained that **"They**

[Bradford Council] have done the right thing" going on further to say that **"I think for me if you are training thousands of people, you can't do one to one, you can't do on the job because, on the job, the system hasn't gone live yet, so you can't do that. It is too late"**. Having a formalised, structured approach was one approach which Simon Hulse described, with Ian Farrar commenting that **"The approach is driven by the project board. Not the user"**, light-heartedly going on to say **"every user would want to spend a weekend in Spain**", Wes Simmons went on to reaffirm this point by saying **"The training is based on the product you can mostly train, not what the end-user would prefer to have"**. In contrast to the overall view, Dominic Rea and Stephanie Snaith both agreed this action should be undertaken, with Stephanie making the point that **"we do [Receptive training] if we are doing pre selection training, we always evaluate it"**.

SUMMARY OF POTENTIAL CSF

Table 50: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Rejected	0
Consultant	2 Accepted 5 Rejected	2
	Total	2

Appendix 5: CSF 5: Timing of Training delivery

CSF: The training was delivered as it was required (≥eight weeks prior to their release).

CSF Keyword: Timing of Training delivery.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The timing of the training was very well organised, from the observations made during the project team placement it was evident that the training activities was well coordinated.

The training schedule began with the appointment of transition champions very early in the implementation process, and subsequently the trainers were appointed and trained, this was undertaken in a scheduled window of workshops prior to any end-user training being undertaken. This opportunity was taken to identify and train the super users, these were all Council employees who showed a high aptitude in systems or processes awareness, and received further training, coaching and on occasions early exposure to the new systems. Such super users were allocated as 'officially recognised first points of contact' for system queries in the end-users office environment.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

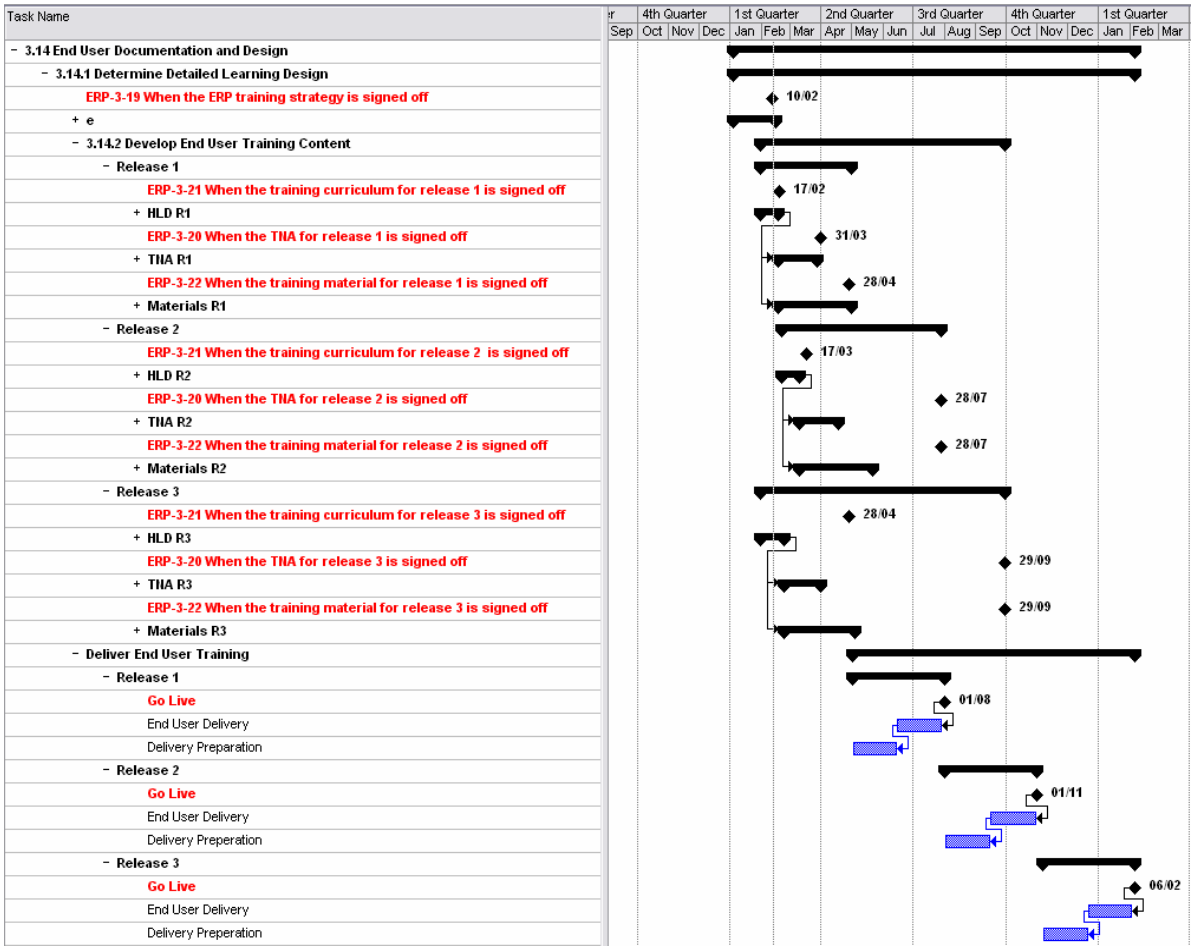
bradford

Training Milestones

In the case of Bradford Council, an outline of the training milestones was prepared, which mapped out every aspect of the training requirement. This included an indicator of exactly when the key issues of training curriculum, training needs analysis and training material was to be signed off for each release. The end-user ***training was delivered no later than eight weeks prior to each go-live date***, and the reality was that end-user training commenced in the 4th quarter of 2006 and ran to the 3rd quarter of 2007 in varying degrees of intensity. End-

user training evaluations were undertaken on an ongoing basis to pick up any critical issues which could arise to deal with them promptly.

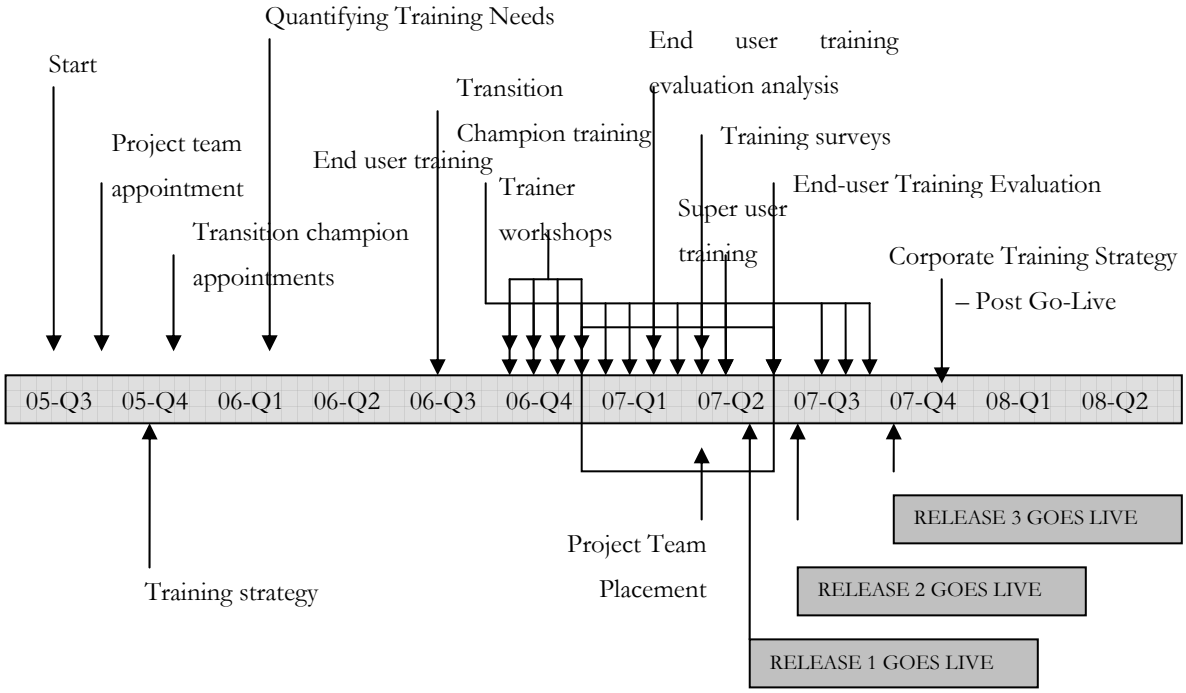
Figure 20: Bradford-i ERP Implementation Project Plan



Source: Bradford Council internal document.

The key training events included a well coordinated series of activities that were schedulaed in a tight window prior to the go live date.

Figure 21: Key Training Events



PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding timing of training delivery, Linda George, the Head of Training made two comments **"The go live dates were key. We had no say over this at all. We delivered the training no later than eight weeks prior to a release, so it was fresh in their memories. We needed to have trained people within that window, because then the trainers would have to go onto the next release. So we couldn't let the schedule slip. So as soon as the finance people were trained, there might have been a few mop ups. What we ended up doing is leaving one of the trainers doing the mop ups, whilst the rest went on ahead and started learning about the procurement side and then that other one had to come along and catch up"**. In addition, Linda George commented that **"I think the only thing that impacted [the quality of the training delivered] was the tight release dates of release one, two and three. I think they underestimated the impact of procurement on release two, as this was going to affect more of the Council (mileage claims, petty cash claimed), as soon as it became an issue that hit their pocket, resistance increased"**.

This potential CSF was deemed to be accepted on account that the implementation practitioners could not stress strongly enough the importance of this issue. However, the quality of the training was compromised at the expense of the timing of the training delivery.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that the timing of the training was critical, which is a view upheld by each of the consultants interviewed. Ian Farrar described it as being **"an important issue"**, commenting that if it were undertaken too early, **"It [the training] would just fall out of their heads"**. Dominic Rea makes the point that **"It needs to be close enough to the go live for them to remember what they were shown"**, indeed Simon Hulse makes the point that **"Training is usually in the last two weeks prior to go live and to be quite honest, the later the better"**. Stephanie Snaith makes the argument for introducing **"enough time for them [the user] to practice"**, explaining that this highlights **"risks and opportunities to come out of the woodwork"**, making the point that **"we normally aim for about six weeks [prior to go-live]"**. Wes Simmons highlights that there are risks to this approach, although he reaffirms that it is critical, saying **"Our project plans are built around user testing being as close to the go live as possible, which is a bit dangerous because if something goes badly wrong, you go 'Arrg' are we going to fix that in time for the go live date?"**. Neil Rushby expands on this point saying **"I think the dates for the training are critical and they are always planned"**, explicitly outlining that **"We tend to plan the end-user training within the final month before go live"**. There appears to be a dual purpose in delivering 'last minute training', as Neil highlighted the important issue that **"you'll have people who are of a negative mindset, who do not like change and so you have got to have absolutely nailed down before you role it out"**. In some instances the high number of system users would simply not facilitate last minute training, on this issue Hamid Aghassi said, **"It is absolutely critical that you time the training before the go-live date"**, for instances where the user numbers were exceptionally high **"you may end up taking three months before go-live and then what you do is you provide refresher courses"**.

SUMMARY OF POTENTIAL CSF

Table 51: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 6: CSF 6: Tackling technophobia

CSF: Self identity programmes were initiated e.g. individual logins, to overcome technophobia.

CSF Keyword: Tackling technophobia.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council ***issued usernames and logins*** which helped with promoting self identity and dealing with technophobia. This was also dealt with by the use of super users, transition champions and corporate communications.

The training schedule began with the appointment of transition champions very early in the implementation process, subsequently the trainers were appointed and trained, this was undertaken in a scheduled window of workshops prior to any end-user training being undertaken. This opportunity was taken to identify and train the super users, these were all Council employees who showed a high aptitude in systems or processes awareness, and received further training, coaching and on occasions early exposure to the new systems. Such super users were allocated as 'officially recognised first points of contact' for system queries in the end-users office environment.

As a direct result of the pre training survey, Bradford Council took the decision to utilise super users to assist with on the job training, along with the introduction of a help desk to provide instant support. All co-ordinated training was built around classroom based training that integrated a personal one-2-one approach in the session. These were kept to small class sizes of less than 12 people. To ensure end users were enguaged with the training sessions, it was decided to only provide hard copies of training materials and quick reference guides after the training had been delivered.

Figure 22: Email Regarding Mandatory System Login Procedures

From: ERP Change Team

Sent: 20 February 2007 16:20

To: ALL E-MAIL USERS - ** AUTHORITY WIDE **

Cc: gkilner@uk.ibm.com; Paul Joyce (paul.r.joyce@uk.ibm.com); Iqbal.Padda@serco.com

Subject: Logging on to ESS / MSS

Please be advised that when you re-set your password in order to log onto ESS/MSS, you do not accept any defaults that the Internet Explorer may fill in on any of the fields. If you need to re-set your password for a 2nd time, the default will still recognise your old password.

Please ensure you delete anything that is in the password field and you always **type** in your password when logging into ESS/MSS rather than accepting any defaults.

There may be a few problems logging into ESS/MSS over the next few days due to the high volume of staff going into the system. Please bear with us and if you are still experiencing problems, please contact your Super User who will log the call to the ICT Helpdesk on your behalf.

Again, a list of Super Users can be viewed by clicking on the link below:

http://mylearning.bradford.gov.uk/mybit/ess_mss.htm

Please do not respond to this email.

This email has been sent with the permission of Paul Leese, Lead Bradford-i Programme Change Manager, Strategic Information Management Team.

Bradford-i Change Team

Email: ERPChangeTeam@bradford.gov.uk

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding tackling technophobia, Linda George, the Head of Training commented **"There was a lot of communication from the comms team, we had the 'my learning website', we had a little my learning e-learning test where there was a prize, to get people used to using the system. We had newsletters on the 'my learning website', and I think probably the Transition Champions will have had a big role to play in that"**.

In addition, Linda George commented that **"Mandatory usernames and logins were issued, I think it was for one of the releases where they wouldn't release a username or login until they had attended their training, this was procure to pay, as this was critical. This had the biggest impact over the council, this is why we took this approach. This is where staff expenses claiming were affected. The problem was that departments hadn't changed their way of working, and so what happened is that we had more people coming on training than should have done, if the change had occurred before, if we had said this process in your department is going to change, so you need to identify who you critical users are for these stages"**.

This CSF was deemed to be accepted upon prompt, efforts were taken to support the end users in adaption to the new system.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that tackling technophobia was important, which was a view mainly rejected by the consultants, with six of the seven consultants saying this was not a critical issue. Ian Farrar was the only consultant to agree that tackling technophobia is critical, saying **"Every implementation this is an issue, yes. It is customer buy in really, due to the nature of ERP"**, explaining that **"what we tend to do is spend some time with them as this type of investment reaps its own rewards"**, saying that **"it's quite often the people who were quite wary and scared of the system end up being pure advocates of the system"**. Simon Hulse did acknowledge that technophobia still exists, but said **"we do have users with technophobia, it is down to them to overcome that technophobia"**, he explained that they would **"understand it, to a certain degree"**, but would have no hesitation in **"visiting their senior manager or line manager [if an issue persists]"**. Distinguishing between public and private sector organisations, Stephanie Snaith said **"There isn't room in a private sector business to carry people"**. Hamid Aghassi makes the point that it is not essential, saying **"I don't think that in a couple of days or weeks [of training]**

you are going to get them out of that. Are you?". Dominic Rea makes the point that "**If someone is technophobic, they don't belong in a modern organisation**", making the important point that **"they are a barrier to the future of the business they work for"**, concluding by saying **"and that includes the MD"**. Concluding this point, Wes Simmons believes it is the supplier who needs to keep their consultants up to date, saying **"It is a long time since I encountered technophobia. Most people these days have a computer and the internet, actually they complain that we are not technical enough"**.

SUMMARY OF POTENTIAL CSF

Table 52: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted on prompt	1
Consultant	1 Accepted 6 Rejected	1
	Total	2

Appendix 7: CSF 7: Undertake skills based training

CSF: Staff were segregated into managers and employees and also core users were separated from standard users.

CSF Keyword: Undertake skills based training.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In reviewing end-user training ***Bradford undertook managerial self service training (MSS) and employee self service training (ESS) separately***, this was undertaken to ensure each staff member accommodated the new system and understood how to perform their role using it. All end-users, both managers and employee users were trained by the same Council trainers and were supported by the same super users.

The aim of the ERP project was to facilitate the training of end-users by initially quantifying the training needs alongside identifying any instances of system resistance. The aim of the training needs assessment was ultimately to ensure that all Council employees were efficient users of the ERP processes and tools.

Management training (MSS Training) was provided to all managers of all departments, this involved all managerial issues and how the system related to their managerial duties. To implement this, a spreadsheet collating the training for each attendee was prepared and used as a checklist. Training windows were allocated for course availability, whereby managers chose to participate at any given time within this window (usually a course would run for eight weeks in total). Each participant of the MSS training was allocated with this course code. The training was issued via e-invitation several days prior to the course date, and a subsequent telephone call was made on the day to remind them.

Employee training (ESS Training) was undertaken seperately to management training, these courses were more department specific, although the logistical approach was similar to that of the MSS training mentioned above.

Within Bradford Council, an evaluation began with a ***quantification of all core users*** and all general business users, these were then subsequently quantified departmentally. The following chart provides an estimate of the number of users that required training, differentiated by their roles. Within this, it was determined that there would be a further need to differentiate between specific roles.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Undertake skills based training

Table 53: Quantifying Training Needs

Number of Employees by SAP Function	
Finance (SAP training)	70 core users 700 business users
Procurement (SAP training)	50 core users 6000 business users
HR & Payroll (SAP training)	60 core users 6000 business users

Source: Bradford Council internal document.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding quantifying training needs, Linda George, the Head of Training commented **"We identified the critical users, 600 of the 6000. From manager to employee. We also sort of undertook role mapping where people were allocated against specific training courses and dates of delivery. We were training for the role mapping that had been undertaken. We were really targeting who needed to be trained"**.

Regarding skills based training, Linda George commented **"Skill based segregation was critical. A lot of this was to do with the transition champions. My understanding is that Juliette [Project team member] would send these spread sheets out and the transition champions would have to arrange for staff to be role mapped to this, so that we could identify the numbers that needed training. The transition champions had a crucial role in this process. We didn't have the resources to do this anyhow"**.

This potential CSF was accepted on account that the skills based training was successful, and a key tool for achieving this was the transition champion.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that undertaking skills based training is critical, which was fully supported by the views of the consultants. Wes Simmons reinforces this point saying **"we do segment, you have got to. How we segment depends on the customer, it depends on what they are rolling out"**, explaining that **"You have got to have it functional [segmentation], and management is a function as well. So it may be you train your managers on 'these are all the reports you get, this is how you do the enquiries', you train your operations people on the operations bit that they are in"**. Although this view is not held by everyone, in fact consultants tend to fall into two main camps, those advocating functional segregation and those advocating managerial segregation. Simon Hulse advocates managerial segmentation, saying **"Yes, we have the standard base users that have permissions to the relevant day to day tasks we then have the managerial access which is a layer above that"**. Hamid Aghassi supported this view, commenting that **"You would certainly segment management from operations"**, but also makes the case for functional segregation, saying **"The training would be more detailed for the core users"**, a point that Dominic Rea advocates, saying **"all staff are not generic, they all have different jobs to do and they require education in different aspects of the system"**, a view supported by Stephanie Snaith who suggests that **"It is more functional than hierarchical"**, whilst Neil Rushby suggest **"it tends to come down to [training] key project users"**, a view shared by Ian Farrar who said they **"identify the core users and then the more diluted user"**.

SUMMARY OF POTENTIAL CSF

Table 54: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 8: CSF 8:Training course evaluations

CSF: Post training questionnaires were issued to all end-users after their training.

CSF Keyword: Training course evaluations.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In the case of Bradford Council, sample ***training evaluations were undertaken***, and these were used ***to improve and adapt training delivery***. Sample evaluations were taken to assess the quality of the training provided to end-users, on the 26th January 2007, one such course was evaluated:

A key finding was that the majority of attendees said they found the practice system useful, one respondent commented that "The training gave me ample time to familiarise with the system. I found the practical approach relevant to my learning which complemented with the support given allowed me to raise issues that I personally had and therefore enabled me to feel confident". Refresher courses were particularly useful in assisting the training required. Indeed another respondent said "I think a further refresher course would now be useful, so as to be sure everyone is using it to its full ability". In supporting the training requirement handouts proved to assist the learning process well. In terms of delivering the training, this was assessed to be mainly on time, with late training delivery being a minor issue. On this issue one respondent mentioned that "This would have been better using CD Roms to give the trainee guided step-by-step instruction which could be accessed at a rate appropriate to the individual. Training could have been started much earlier and would then have allowed for much more guidance". Not all feedback was good, notable comments made included "I had one day training and that was it. This was insufficient considering it's the single most important system. The training itself was ok. There should be a dedicated training area and trainer. Training feels like an inconvenience to be got rid of".

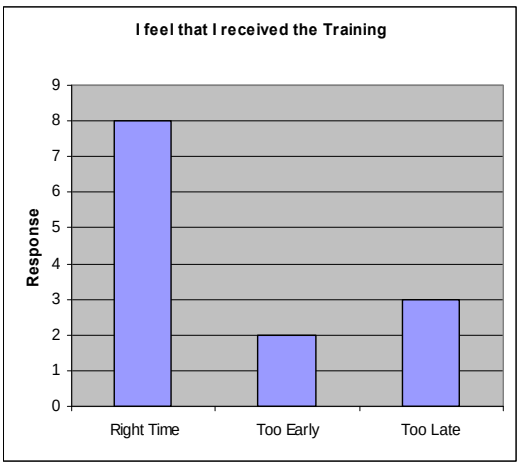
PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

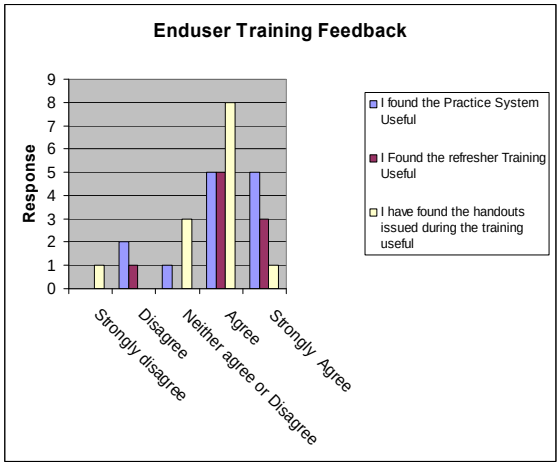
bradford

End-user Feedback

This particular course had 13 end-users being trained (26/01/07).

Figure 23: End-user Feedback





Source: Internally Undertaken Bradford Council Survey

The responses to the following questions were: 62% of the course attendees said this was delivered on time, with only 15% stating this was delivered too late. 76% of attendees said they found the practice system useful, with only 15% stating that it was not useful. 89% of attendees found the refresher training useful, with only 11% saying it was not useful. 70% of the attendees found the handouts useful, with 8% not finding them helpful at all.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding this training course evaluation, Linda George, the Head of Training made the following comment **"We used Kirk Patrick, this is level 1 to 4, level 1 is the evaluation, what we call the smiley faces sheet, level 2 takes place within the training, so it's where they do exercises to check understanding. We did some level 3, which is where we just took a percentage and just did a couple of interviews, and that's further down the line, has the training worked i.e. have they been able to take this learning into the workplace. That is a few weeks down the line. We didn't do level 4, because this is how has this changed the organization, and we just never got to that point"**. In addition, Linda commented that **"We always looked at what people said. The problem was, the schedule was so tight, there was absolutely no time really to do any massive overhaul of anything"**.

Linda concluded by saying **"We used it for lessons learned, but the training schedule was so tight, it was a missed opportunity"**.

This CSF was deemed to be rejected on account that although sample training evaluations were undertaken, they were not acted upon. There was a lack of time and 'departmental ownership' towards improving the specificity of the training materials. Although training course evaluations could be beneficial, they did not prove to be critical in this instance.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that undertaking training course evaluations is not critical, which is a view firmly opposed by each of the consultants. Hamid Aghassi says **"I think this is critical"** going on to say **"if you do a training course day one, if you don't get survey, then you can't get day two right can you"**, Wes Simmons reinforces this point, saying **"I would always do training course evaluations. I would always recommend you act on them**. **If you are rolling out lots of training to people, the first few times you do it, it is vital you do the evaluations. Vital you do it, because if you don't, then you could be just delivering the wrong message to the wrong people continuously"**. Ian Farrar makes the point that **"We have a quality system where we measure the satisfaction of the training delivered"** describing that **"We ask people to fill in questionnaires after the training"** which is a view expanded upon by Simon Hulse, who says **"we have a system called 360 feedback"**, explaining this as being where **"the trainer has to select a number of people to do that 360 feedback and it must be someone who they have interacted with through their role"**. In addition to this, Dominic Rea goes the extra mile in visiting the training sessions to get a first hand perspective, **"To improve our training courses we have questionnaire analysis. We also do it the other way round, we attend these as well".** There are other opportunities presented by undertaking training course evaluations as highlighted by Neil Rushby, who says **"I look at it more analysis of the consultant to see if there is any feedback that indicates the consultants themselves need more training"**.

SUMMARY OF POTENTIAL CSF

Table 55: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Rejected	0
Consultant	7 Accepted 1 Rejected	7
	Total	7

Appendix 9: to training CSF 9: Develop a benefits delivery outlook

CSF: An eight phase training approach was used to ensure benefits were realised.

CSF Keyword: Develop a benefits delivery outlook to training

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

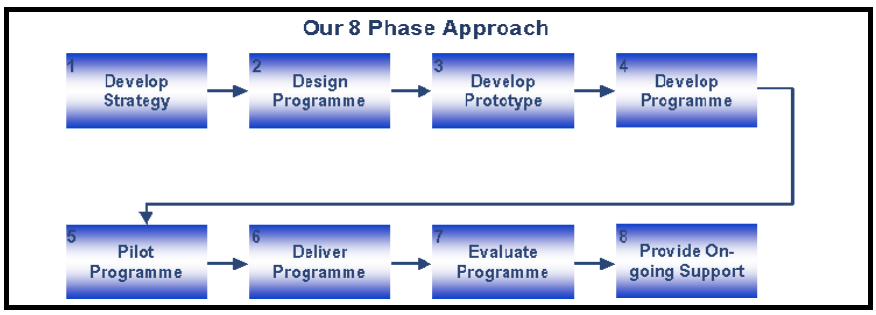
Bradford Council ***outlined an "eight phase training strategy"*** in order to review training progress and verify whether it measured up to the initial approach of focusing on delivering benefits. This involved developing the training strategy, designing the individual training programmes, developing the prototype, developing the programme setting up a pilot programme, delivering the programme, evaluating the programme and providing on-going support.

In addition, the Council took steps to raise the awareness of the new ERPII system through regular communications to staff members, including requlars email correspondence highlighting the features and benefits.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford The Eight Phase Training Strategy

Figure 24: The Eight Phase Training Strategy



Source: IBM (2009)

Table 56: Bradford Council Application of the 8 Phase Strategy

Phase 1 – Develop Strategy:

The ERP strategy is built upon the overall Bradford-i training strategy. This particular strategy document is focused on the ERP aspect of the programme. The strategy is developed in conjunction with the Programme training manager and the ERP project leads.

Phase 2 – Design Programme:

During this stage the look of the learning materials and the methods of delivery are identified. The deliverables from this phase are:

- a documentation and training materials design approach;
- a Training Needs Analysis (TNA) identifying the number and needs of the users to be trained;
- finalisation of templates and standards.

Phase 3 – Develop Prototype:

A prototype will be built from the training course curriculum to test the design determined in the previous phase. The prototype will be applied within a simulated environment, e.g. a classroom-based course is presented to a small group of trainers and their feedback will be incorporated in the design. This will provide the training team with three key things:

- a sample of the final training materials
- an indication of any technical challenges or risks involved in development which need to be addressed; and,
- benchmarked training materials. The prototype will then be signed off by key communities of interest.

Phase 4 – Develop Programme:

During the Develop Programme stage, research will be done to collect the base content for materials for each training course. This will be mainly through reviewing system and process documentation and holding structured knowledge transfer sessions with the Implementation Team and Subject Matter Experts. All course materials will be produced including training systems data and exercises. Training administration and scheduling begin to become a priority.

Phase 5 – Pilot Programme:

Towards the end of the Develop Programme phase the training programme will be piloted and time will be taken to refine the content of courses based on feedback at this time. Pilot sessions serve two main purposes:

- to pilot training materials, collect feedback and make necessary changes; and
- to provide trainers and super-users with the opportunity to practise their training and facilitation skills in preparation for training delivery.
- During the piloting phase the training facilities and databases are tested to ensure they are in working order. This is also the stage when trainers (new to the project or subject matter) are trained in the content of the courses they will deliver to end-users through Train the Trainer (TtT) courses.

Phase 6 – Deliver Programme:

Training will be delivered to end-users just in time for go-live. Classroom based training will be delivered using a combination of trainers and super-users. Super-users are Council employees who have high aptitude in systems or processes awareness, and will receive further training, coaching and/or early exposure to the new systems. Such super-users go on to be recognised and familiar first points of contact for system queries in the end-users office environment.

Phase 7 – Evaluate Programme:

Evaluation is a critical step in the learning programme and will be used to determine end-user performance as well as the effectiveness of training materials. User competence can be evaluated at the end of each course via assessments and trainer feedback. User and trainer feedback will be captured through feedback forms and used to improve course material and content appropriately. Where possible, evaluation of Release 1 material will inform material for Releases 2 and 3.

Phase 8 – Provide Ongoing Support

This final stage focuses on the analysis and monitoring of system release changes and the impact on training materials. During the Provide Ongoing Support stage skills transfer to Council staff and trainers is finalised to ensure they are able to develop and deliver training to a high quality standard.

Source: Bradford Council internal document.

Figure 25: E-mail Regarding ERP Awareness

Awareness Sessions, Q&A's from the Awareness Sessions, FAQ's, e-learning and a Full list of Super Users & Transition Champions.

From: ERP Change Team

Sent: 16 February 2007 15:38

To: ALL E-MAIL USERS - ** AUTHORITY WIDE **

Subject: ESS & MSS Goes Live on Monday 19th February at 1.00pm !!!

ESS & MSS Goes Live on Monday 19th February 2007 at 1.00pm

On Monday you will receive an email with instructions on how to access and log onto ESS & MSS.

Don't Forget!

If you haven't had a chance to look at your MyBit Page on the My Learning Website, please click on the links below:

- A copy of the Awareness Sessions held http://mylearning.bradford.gov.uk/mybit/ess_mss.htm
- Q&A's from the Awareness Sessions http://mylearning.bradford.gov.uk/mybit/ess_mss.htm
- FAQ's http://mylearning.bradford.gov.uk/faq.html
- The ESS & MSS e-learning courses http://mylearning.bradford.gov.uk/mybit/ess_mss.htm
- Full list of Super Users & Transition Champions for your area http://mylearning.bradford.gov.uk/mybit/ess_mss.htm

Please take this opportunity to have a look through the MyBit page http://mylearning.bradford.gov.uk/mybit/index.htm to familiarise yourself with ESS & MSS and for another chance to complete the e-learning.

Please do not respond to this email.

This email has been sent with the permission of Paul Leese, Lead Bradford-i Programme Change Manager, Strategic Information Manager.

Bradford-i Change Team

Email: ERPChangeTeam@bradford.gov.uk

(The information in this e-mail and any attachments is confidential. It is intended solely for the attention and use of the named addressee(s). If you are not the intended recipient please notify the sender immediately. Unless you are the intended recipient you are not authorised to, and must not, read, copy, distribute, use or retain this message or any part of it.)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Linda George, the Head of Training made the following comments about eight phase training strategy **"It did feel like we stuck to the road map, because we structured in dry runs, etc. and we did structure in how they needed to work to that end. It might have happened more accidentally than by the eight stage plan"**, commenting also that **"What we always said was that if we could have had Release 3 first, we could have maybe, we didn't have an MSS system, to collect the information. The staff could have been more involved, and we could have used SAP to create a training records, and so as we tendered, we could have already begun populating SAP. We are still struggling with it, we still can't do some of the things on there that we should have been able to. But certainly if they had done release 3 first, we could have used that system to book out training. And then we would have had people's training records on file, and up to date"**. In addition also, Linda George commented that **"My understanding is that IBM took a lessons learned away from this, and I think what they decided was that if they rolled out something similar, they would look at, if the Council didn't have their own LMS (learning management system), that they would introduce one. Now I don't know if they would expect the Council to pay or not, but that was one of our biggest problems"**. On this issue Linda concluded by saying **"The biggest downside was that we didn't have a LMS to manage it all"**.

Regarding the developing a benefits delivery outlook to training, Linda George, made the following comment **"What it ended up, was that with each different release, we had so many different spreadsheets. To have the training rooms, to map the different courses that people needed to do, depending on their job role. The only way we ended up doing it was, because we didn't have an elements system to capture this, we just ended up with these massive excel spreadsheets"**, commenting also that **"In mapping roles to set courses, and then really, people have attended those courses and, the records have probably been left somewhere, we probably have no record, apart from on these excel spreadsheets. Now if we had had ESS MSS first, and it was working, because it is still not working properly today, we could have used that where we could have put the learning events on and we could have booked people on so that their training records would have been available. So everything they attended on Bradford-i could have been recorded on their ESS. But, it isn't because it came too late"**. Linda concluded this point by saying **"Now Social Services had a LMS called RTIX, and we did download all people who would be attending that, but because we had three different work streams, and each one had different modules, we struggled using RTIX. An example is that the**

revenues and benefits they might have module 1 to 5 during the week, but a person might only be role mapped to module 1, module 3, module 5, and it was just too much work for us to identify that they were on a 5 day course, that they were only on module 1. We were working with our "hands tied behind our back" all the time".

This potential CSF was deemed to be accepted upon prompt, as a benefit orientated road map was set out and steps were taken to follow it.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that undertaking a benefits orientated outlook to training was accepted on prompt, this is verified by only four of the seven consultants interviewed agreed this was critical. Stephanie Snaith does believe it is critical, suggesting that **"There will always be a few people, or one or two people who go through everything so that you have got joined up thinking"**, Dominic Rea also agrees with this point, saying **"The benefits delivery outlook to training, training is just a small aspect of what we do"** explaining **"It isn't just training, training is just almost the delivery mechanism. Our whole implementation approach is outcome based".** In contrast, Hamid Aghassi disagreed that it is critical and said that **"It is a good thing to do but we haven't done it"**. Ian Farrar explains that **"It is often a cost issue"**. Simon Hulse alludes to the fact that **"it is informal"** and highlights the lack of commitment by saying **"is really done throughout word of mouth and the trainer will give informal feedback".** Wes Simmons does not believe it is critical, saying **"generally the training is done on the basis of you just need to get these people trained rather than this is the benefits we will get from the training"** but conceding that **"You could try and bring out the benefits top people, and it is useful if you can"** although stating that **"if you are leaving it to the point of the training, you have probably left it too late, they have to understand the benefits of the system before they begin the training or there should be some way of doing that afterwards, but not in the training"**.

SUMMARY OF POTENTIAL CSF

Table 57: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted upon prompt	1
Consultant	4 Accepted 3 Rejected	4
	Total	5

Appendix 10: CSF 10: Promote the benefits of the system

CSF: The transition champions were critical in promoting the benefits.

CSF Keyword: Promote the benefits of the system

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council outlined a number of important tasks in regards to delivering the training and implemented these strategically to maximize the training uptake.

Transition champions were appointed on a voluntary basis, but were selected according to their status. In all there were in excess of 20 for the entire organisation. Characteristics of transition champions during the selection process included; leadership, power, influence and posture and consequently these individuals were all imposing characters. The task of infusing knowledge and understanding into transition champions is not an easy task, as primarily these individuals are most likely to be routinely questioned and opposed by resistant personnel, or those who have encountered problems, particularly if the transition champion cannot resolve the query to the satisfaction of the complainant at that moment in time. Training the transition champion was taken very seriously. Whilst the transition champions did not participate in any direct training to end-users, it was essential that they were trained in order that they could convey important messages with a full understanding of the system.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

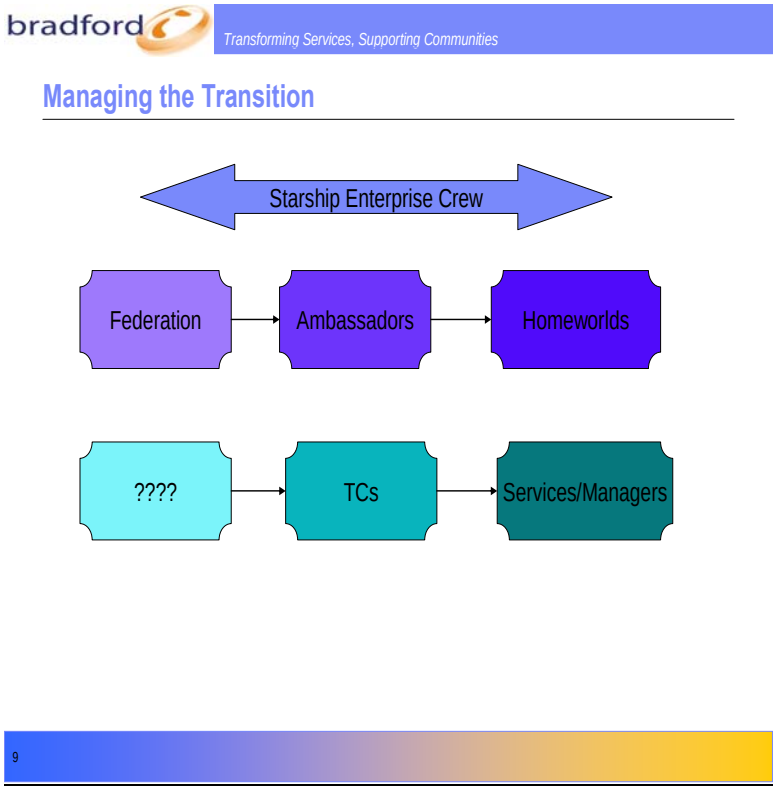
Transition Champion Training

On the 15th June 2007 a key presentation was given to transition champions.

The theme of the presentation was to encourage transition champions to drive out inefficiencies, promote continual system improvements, help drive the change agenda and maintain transfer of knowledge & best practice across services.

The presentation theme was one which sought to tackle the variety of resistances possible, these included satellite offices of the Council with little contact with head office, medium sized offices, and large central offices that communicate through head office regularly. The following role play was undertaken:

Figure 26: Transition Champion Training



Source: Bradford Council internal document

The scenario chosen was one that incorporated a familiar TV series "Star Trek", where by differing resistances to particular 'outposts' were encountered and resolved.

Initial comments noted at the beginning of the event were: "I'm too busy for this", and "I don't have time to play games". Fortunately due to the extraordinary talent of Linda George, who presented this critical meeting, learning and understanding of the tasks at hand became apparent to the transition champions, the people involved became involved and gave praise upon the conclusion.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Linda George, the Head of Training made the following comment about promoting the benefits of the system **"The Transition Champions played a massive role, because they were actually change champions back in their department. So they would have regular meetings with the ERP change team and it was like a two way feedback system. They would feed in, not necessarily to the change team as to what they felt was happening within their department, what the barriers were and then the ERP team would then give them some information to go back with to try and resolve any issues and overcome these barriers"**.

This CSF was deemed to be accepted as, in terms of avoiding resistance from users, a two way feedback system helped facilitate the promotion of the right messages at the right time.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that promoting the benefits of the system is critical, a view that is fully supported by all of the consultants interviewed. Neil Rushby suggests that **"It is the biggest challenge I think in any implementation"** and makes the point that **"It is not just us telling those people [the Client] it will deliver those benefits, somebody in their team is seeing it and delivering it as well"**. Wes Simmons agrees with this, saying **"If people don't understand the benefits of what they're doing, then they won't do it"** explaining that **"Champions are very important in the day to day stuff, when it is getting tough, they're there to say 'look guys we can get through this together' "** but also explaining that **"equally though is senior management though because when it all kicks off, as it will, then you have got to have someone at the top"** going on to explain that **"if you have senior level buy-in, they will promote the benefits across the business"**. Hamid Aghassi agrees that this is critical, saying **"Yes, this is true [Promoting the benefits is critical], no questions asked"** but making the point that **"They [appointed Transition Champions] have to be internal staff"**. Ian Farrar explained the benefit of having one person promoting the benefits, saying **"It is better speaking to one champion if you like, who can roll it out among his staff than shotgun everyone, you know"**, explaining that **"for a fifty user system, you tend to just have one champion who would make it 50% of his daily work working on ERP"**. Dominic Rea says **"we call them a Seeker of Value, and it is often stage two of the implementation [the appointment]"**, explaining further that **"some people just see the big picture"**. Stephanie Snaith goes on to make the point that **"They're probably not appointed, in fact you don't usually set out to find them, they rise up through the ranks very quickly"**. Stephanie commented further that **"Some of**

the best ones have been the more junior members of staff who you would never imagine as a leader, because they can go and talk to the people who can make a difference. I have had some superb advocates, at quite a lowly level of business who have actually stepped out of their day role". Simon Hulse suggest that promoting the benefits is more about overcoming resistance, saying **"Yes, we do exactly the same [appoint Transition Champions] and to be quite honest before we even think about start implementing a large solution, we look internally and see where the gripes are coming from"**, going on further to say the reason for this is **"if the application can't do a function for them then they [the end-user] will make it well known that they can't do something"**.

SUMMARY OF POTENTIAL CSF

Table 58: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 11: CSF 11: Ensure knowledge transfer from the vendor

CSF: IBM assisted in training the trainers.

CSF Keyword: Ensure knowledge transfer from the vendor

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In undertaking the end-user training, initially the task of training the trainers was undertaken. Here all trainers were asked to perform dry-runs of training courses, this was managed directly by Linda George, the Head of Training. A series of training ***sessions were run by IBM in order to ensure they gained a solid understanding*** of the solution and were well prepared for training delivery. To undertake the trainer training, workshop sessions were arranged, these involved Training Needs Analysis (TNA) to identify the number and needs of the users to be trained. During each release the trainers received training focused on the deliverables within that particular release.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Ensure knowledge transfer from the vendor

IBM provided training courses for system upgrades.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Linda George, the Head of Training made the following comment regarding ensuring knowledge transfer from the vendor **"I trained the trainers together with IBM, we did it together. On the program (Bradford–i), not necessarily for staff outside the program, as we sort of did the transferring and I think they let us know as much as we needed to know. Our Council staff working alongside IBM on the ERP development, this is where the transfer happened, and this was passed to the trainers. That's where the knowledge transfer happened"**.

This CSF was accepted, knowledge transfer from the vendor to the client was successful and the implementation practitioner responsible for this issue strongly advocated the potential of this as a critical factor.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that ensuring knowledge transfer from the vendor is critical, which is a view held by all of the consultants interviewed. Some consultants, such as Ian Farrar advocate client side training, saying **"We have our own trainers and would prefer to use these"**, but acknowledging that **"If we were to train a trainer we would obviously train them to the highest standard and which in turn, they would train their own staff"**. This is in contrast to the views of Stephanie Snaith, who states that **"Certainly in my experience across vendors, probably only ten, fifteen, twenty percent of times when the vendor would train"**. Wes Simmons goes on to say **"first of all, knowledge transfer is vital! We know how the software works, they know how their business works, we have to do knowledge transfer"** and says **"As to the point whether in house trainers are better than external trainers … generally I have found that it is the internal people are better because they understand the business and the questions that come up are more appropriate"**. Simon Hulse says **"Yes, we use classroom based training and we train the trainers"** and Dominic Rea reinforced this point, saying **"It is a standard approach [Train the trainer] and it is crucial"**, further going on to explain that **"they have to take ownership of the system, lock stock and barrel and train the trainer is essential to that"**. Neil Rushby made the point that **"they [the trainers] are trained early on and then we work with them in building the solution, so that we are improving their knowledge as we go through. We try to emphasise the fact that when they start to train the end user, they have to know the answer to at least ninety percent of the questions"**. Hamid Aghassi said **"Training the trainer is critical. We try to use the organisation's staff as the trainers, rather than bring professional trainers who are going to do this, because that helps the buy in"**. In explaining the specific details, Hamid went on further to say **"the knowledge transfer and dry runs are an integral part of that training. This is critical to success"**.

SUMMARY OF POTENTIAL CSF

Table 59: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	**Accepted** outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 12: CSF 12: Internal dissemination of knowledge

CSF: Super users supported end-users in applying the training, providing onsite training support.

CSF Keyword: Internal dissemination of knowledge.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In total 52 ***super users were appointed*** and in the process of appointing super users, the key criteria was that they were representatives from across the Council's departments and so selection was partially on a geographical basis. Super users were appointed on a voluntary basis, and were given extra time off work to learn, which was supported by the programme. A key part of this process was to evaluate super user feedback from the courses. Super users were asked a series of questions regarding areas of key importance as it was important that the workshop objectives were clear and that Super users felt they could share much of what they had learned. The comfort of the training facilities was a key concern, ensuring this was well signposted, parking was available, there were ample training materials. To ensure there was a good learning environment tea breaks and discussion sessions were scheduled between training sessions.

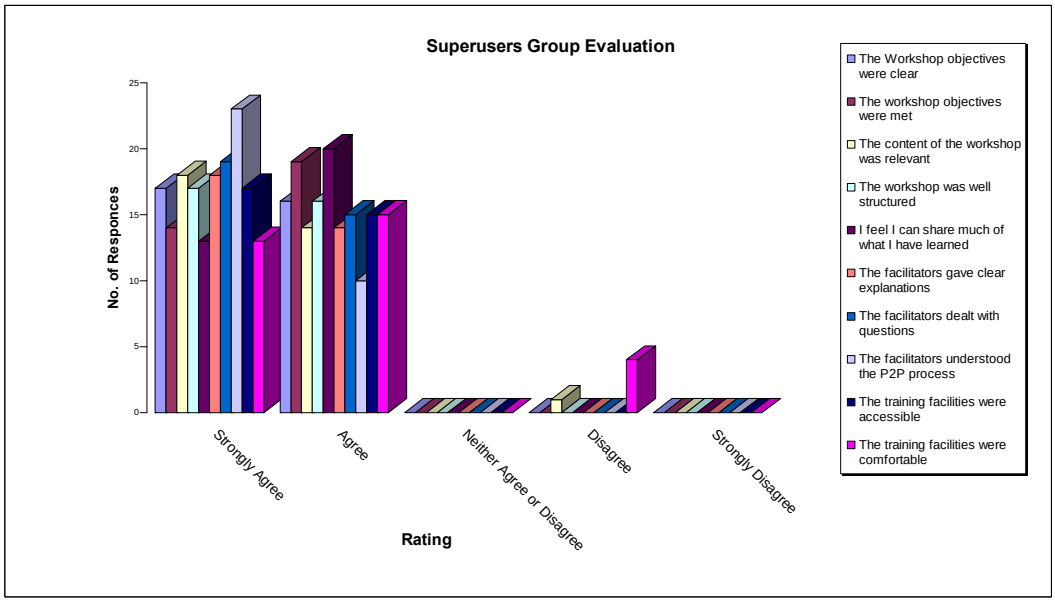
PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford

Super User Evaluation

The Bradford-i training team undertook an initial survey of the training provided to super users on January 18th 2007. The survey was based on a sample of 34 super users.

Figure 27: Super User Evaluation



Source: Internally Undertaken Bradford Council Survey

As can be clearly seen, super users responded very positively to the training provided to them. Of key importance was that the workshop objectives were clear and that super users felt they could share much of what they had learned. The main concern was over the comfort of the training facilities, although this was negligible.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Linda George, the Head of Training made the following comment about internally disseminating knowledge **"Now this didn't happen with ERP simply because it was hitting so many different departments that it was a much more difficult thing to do to manage across departments. With revs and bens it was more of a contained area; it was one particular department and so they were able to manage that much more in house. ERP hit every department across the council; we just weren't able to do that. Where it worked in revs and bens, I think it was a good model"**.

Regarding the evaluation of super users, Linda George made the following comment **"The super users played a really critical role. I would say that the transition champions were more about change management at a departmental level and the super users were more at the end-user level. The super users also supported the trainers in some areas as well. Some of the super users supported the trainer in revs and bens for the actual training (release 3). The super users were more in ERP the subject matter experts that they had been working with in each different department. In revenues and benefits, the super users were revenues and benefits staff who came on board part way through**

to pick the system up and then went into the training room with the trainer and helped the end-user. They then became super users and floor walked".

This potential CSF was deemed to be accepted on account that whilst it was acknowledged as being a difficult task, the model was strongly advocated. A key tool to achieve this was the super user.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that ensuring internal dissemination of knowledge was critical, which is a view upheld by each of the consultants interviewed. Hamid Aghassi said **"When a system goes live you need the support of the people who are running that system and the only way you can provide that support, which we call floor walking, … and those are super users"**. Ian Farrar explained that super users are critical in disseminating knowledge, saying **"you tend to find a super user relays all the issues in the organisation through him or herself to our support desk"**, whilst Stephanie Snaith explains that **"someone who is a very good super user, they are very thorough in taking an area of assistance, in putting data in, in testing it, in working with it, really thrashing it to make sure it is fit for purpose"**. Wes Simmons makes the point that **"super users are vital, we always appoint super users"** explaining that **"you have got to make sure the super users see it as a long term job"** describing how this can become problematic, saying **"if you start to lose a few super users out of you business within the first year or two of the project, it is amazing how quickly they put in system atrophies, because people put in part of what they know and you go to a customer in two or three years time and they go, 'I can't do that', when the answer is 'Yes of course you can!'"** explaining further that **"you find that Fred learnt it and he left and he told Bert, well he told Bert a percentage of what he knew and Bert left and he told Alf and Alf only knows a percentage of what Bert knew, then he told Betty and he told and so on"** making the point that **"so super users are important and keeping super users current is also a difficult thing to do. We always tell customers to keep super users active"**. Simon Hulse suggests that **"Those people who come to the front are selected"**, whilst Neil Rushby suggests that in selecting the number of super users **"to us it really depends on the size of the organisation"**, making an additional point that more than one is critical as **"One site in particular had one super user who then held them over a barrel once the site was live, saying "right I am leaving unless you give me a big pay rise", so again from there we recommend two or three people for that very reason"**.

SUMMARY OF POTENTIAL CSF

Table 60: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 13: CSF 13: Create knowledge workers

CSF: To deliver future benefits from the new ERP system.

CSF Keyword: Create knowledge workers.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In the case of Bradford Council, even before the end-user training began, a corporate ***training strategy had been formulated to address post go-live training requirements (generate knowledge workers)***. On the 8th May 2007 each department was surveyed to determine their current training approaches. From the report prepared on the 15th July 2007 it was determined that Bradford Council did not, at that moment, have a corporate training and development strategy. Therefore there was no existing corporate training infrastructure for maintaining any residual or delivering any future training needs for ERP. Each department contacted (Finance, Procurement and HR) were determined to have a different approach to training. Meetings were undertaken with managers within these departments to examine the pre-existing methods for delivering training to both staff internal to that department, or to other departments across the Council.

Critical assessments were evaluated in consideration of the overall corporate decisions in regards to the overall future training strategy:

- The findings from finance included the following critical comments: "SAP Navigation is not seen as Finance training and the Finance Department are expecting staff to have already received this training before having any informal training session. They envisage a Corporate SAP Course (to include HR & P2P) which would cover functionality".
- The findings from procurement included the following critical comments: "Procurement training will not include any technical issues or how to use SAP. If SAP is not included in this training, there will still be a knowledge gap in how to input information into SAP".

- The findings from HR/Payroll included the following critical comments: "Currently we deliver training using a "Functional Model" where staff within HR are linked to other Departments and deliver training to that Department".

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Corporate Training Strategy Post Go Live

In determining the strategy for the future two post go-live training options were proposed; these were departmental training (option 1) and centrally managed corporate training (option 2). The following risks were associated with each: (i) the "corporate" approach was determined to have diluted training, would have to be resourced by the council and the logistics would be complicated, whilst (ii) the departmental training raised the issue of reluctance of departmental budget associated with this, some departments saw training as being out of their remit and in addition the staff in departments were not SAP experts (table 61).

Table 61: Recommendations For Transfer of Future Training for ERP

OPTION	
• Each Department: o Finance o Procurement o HR o Payroll • Identify the Lead Person responsible for: o Delivering training to own Department and other Council Departments o Updating existing training materials & Business Process Procedures (BPPs) o Create new training material where required • Programme Training development standards to be maintained • All training delivered to include SAP content	
ADVANTAGES • Departments owning own area of training will ensure subject matter experts inform training design & delivery • Clear ownership of maintaining training materials & BPPs	**DISADVANTAGES** • Depts not clear of how will look after re-structure and are reluctant to take over training due to resource implications • Staff in Departments currently not SAP experts • Some Departments see SAP training outside their remit
Key Issues • SAP Nav training may need to be addressed outside the Department and delivered as part of the Induction training • Handover sessions need to be arranged between ERP Trainers and relevant Departments. May need to extend ERP trainers time on Programme to bring training materials & BPPs up to date and manage handover sessions • Update & maintenance of Mylearning website to be considered (See Recommendation 6.2)	

Source: Bradford Council internal document

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding the post go-live training, Linda George, the Head of Training commented **"There is no post-implementation training. I know there's one or two people in HR that have got SAP knowledge but when you look across the whole council, that's not all that many. And when you do ring HR up, save SAP knowledge, maybe the HR pay role, they just do refer you to the my learning which we don't know if it is up to date. Nobody's looked at it since we left. Bradford-i no longer exists and so nobody takes responsibility for the training. We've now moved on to new projects… As for long term training, if it is happening it is happening in pockets. There is no programmed training any more and the training materials are just sat on a drive. As training manager, this upsets me"**. In addition, Linda commented **"Ultimately no long term**

training was accepted, neither the corporate centralized or departmental training scheme. They wouldn't keep a centralised team because I don't think they were willing to support any more from the program and I had several meetings with different departments about owning the training material and all they said was that they didn't have the resources to handle this. So, really training hasn't continued…".

In a statement made after the recorded interview (notes transcribed on questionnaire sheet), Linda commented **"Chris O'Connnor was programme lead, on an external 3 year contract which was bonus attributed. Chris said decentralised training was key and that departments should take ownership. I [Linda George] left Bradford-i 2 years ago [2007] so could no longer deliver centralised training. I think that as Chris was scheduled to receive a bonus upon completion of the training element, his personal interests dictated events"**.

Creating a 'knowledge worker' requires the constant recording of the training delivered to each staff member, followed by routinely scheduled improvement training. As Bradford-i was responsible for the task of recording staff training, its decommission at the end of the implementation left no opportunity for the development of knowledge workers in a formal capacity, as such appears not to be critical. An interesting point of interest lies in the fact that as the training requirement completion was written into the contract, this was bonus attributed. It is the explicit view of the Head of Training that Bradford Council required centralised post implementation training. Moreover, evidently the development of 'knowledge workers' is outweighed by the high cost of supplying the training needs required which contributed to this decision.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that **creating knowledge workers** was not critical, which is a view opposed by each of the consultants interviewed. Wes Simmons believes it is critical, saying **"In an ideal world yes [creating knowledge workers is critical]"** explaining that **"If you really want to realise your benefits, you should do it"** and explaining this point by saying **"That's the point I made earlier about system atrophies, that's why they atrophy, because you don't do this. People don't train people up. In an ideal world you would do it"**. Dominic Rea also believes that creating knowledge workers was critical, saying **"Yes, absolutely. If they understand the business and you can get expediters to become customer facing as opposed to chasing disparate information then you have added value to the business"**. Simon Hulse added that **"We are a global organisation, I would**

say 95% of the training actually occurs later on. There is obviously a bit of development that goes on there, but, they take the request from the individual person or the super user", whilst Hamid Aghassi said **"I think you need to have a way of communicating what is learnt, to new staff once the system is live"**, explaining that **"What we do is we put it on the web"**. Whilst Neil Rushby says **"we do offer standard training courses throughout the year that people can come onto to improve knowledge or in particular areas to expand knowledge"**, Ian Farrar concluded by saying **"we do offer individual training days, because quite often staff will leave and if there is a train the trainer approach, it can be diluted information"** and **"It keeps them using the system, because quite often they can migrate onto spreadsheets and loose the system, you know"**.

SUMMARY OF POTENTIAL CSF

Table 62: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Rejected	0
Consultant	7 Accepted 0 Rejected	7
	Total	7

Appendix 14: CSF 14: Collaboration based design

CSF: A complex and integrated collaboration between the Council, IBM and Serco was undertaken.

CSF Keyword: Collaboration based design.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

As briefly mentioned in the introduction to this case study, Bradford Council is committed to utilising the ERP framework to deploy CRM support across the Council, and as such they aim to improve access to services, improve customer services, increase customer satisfaction, improve their overall accountability and have a fully integrated back office. This was undertaken by the use of an ***integrated collaboration between the Bradford-i management team, IBM and Serco***.

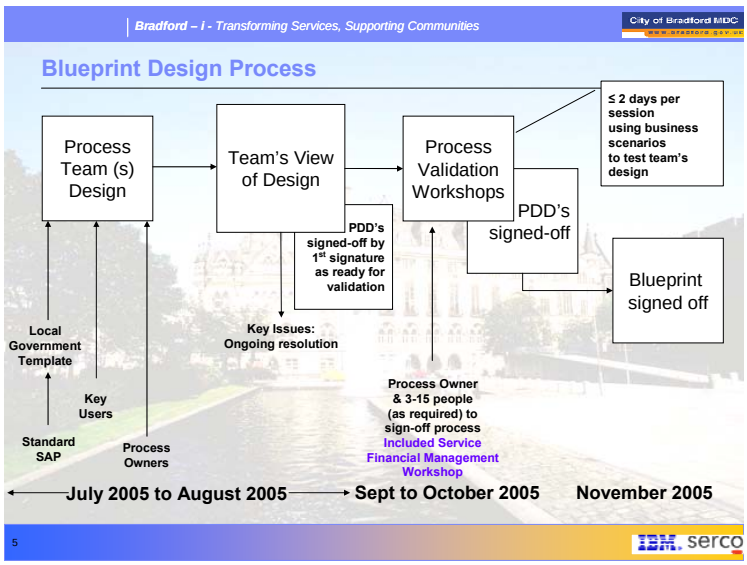
In the case of Bradford Council the blueprint design process comprised of a complex and **integrated collaboration between stakeholders**; Bradford Council (Client), IBM (Vendor supplier) and Serco (Portal integration and outsourcing team). Initially the key issue involved outlining who were the owners of the process changes and this involved an identification of key users. The needs of the Council had to be integrated into the standard (local government) software template provided by SAP, and this was managed by the onsite and integrated IBM team who formed part of the Bradford-i project team. However, the process was a collaborative effort including engagement from senior management which included the Chief Executive Officer, Tony Reeves.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Blueprint Design Process

The blue print design process was undertaken from July to November 2005 and comprised of three stages:

Figure 28: Blueprint Design



Source: Bradford Council internal document. Bradford-I ERP Project Finance Blueprint Version 0.4 (2005)

Stage 1 was the process team design, and in the case of Bradford Council, the blueprint design process comprised of a complex and integrated collaboration between stakeholders; Bradford Council (Client), IBM (Vendor supplier) and Serco (Portal integration and outsourcing team).

Stage 2 was the departmental team's view of the design, where the outcome of the process team design was used as the foundation to the blueprint mapping. Here the outlining of key issues became an ongoing process of identification and resolution, whereby individual sections were signed off upon completion of their integration into the overall vision.

Stage 3 was the process validation workshops, where the final stage of the blueprint process was the validation, this involved ***using business scenarios representing real accounts*** of situations facing the Council and applying the set vision against this. Each separate session included between 3 to 15 staff depending on the nature of the process involved, each took around two full days to be designed and comprised of extensive situational risk analysis. The completion of all of the sessions resulted in the overall blueprint being signed off.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding the collaboration based design, Joanne Gott, the Accountancy Manager commented **"Systems were designed by process teams for each of the elements of the ERP system, however the consultation was done through workshops involving key stakeholders within the business. So the design of the system and the blueprint was agreed by all the different services across the Council… IBM and Serco were involved in all the workshops, and design"**.

In addition, Joanne Gott, the Accountancy Manager commented **"The workshops were council led, and IBM sort of listened to the requirements, to help build the function and service on specification. The key stakeholders were nominated by all the directors and assistant directors who attended those workshops. These are the key influential people who would know how the front end processes worked"**.

This CSF was deemed to be accepted on account that the blueprint was not signed off until all parties were satisfied. In addition, whilst it was acknowledged as a collaborative approach, the vendor strove to deliver the desires of the end-users.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that ensuring collaboration based design was critical, which is a view shared by each of the consultants interviewed. Wes Simmons believed it is critical, and explains that **"I often say to customers, we can't do it to you, we have to do it with you"** describing one instance, saying **"One of the best projects I ever worked on was a big British Rail project where the project director walked up to the kick off meeting and said 'Right it is very simple this project, if the software does it, you do it, if it doesn't you don't'"**, going on to describe an instance where lack of integrated collaboration led to problems, saying **"I use to work for SAP and one of SAP's biggest customers is Shell. This is quite a number of years ago now, but Shell were on a very, very, very, very, very, very old release of SAP and I was talking to one of the guys at Shell asking 'why haven't you upgraded?' and he said 'its too hard', they had so much bespoke software"** making the point that **"If Shell can not afford to upgrade their ERP system because it is too expensive because it is too bespoke, nobody can"**. Hamid Aghassi also believes that is it critical, describing that **"We have a motto which says 'One team one plan'. One team one plan is all about this collaboration, what that actually means is we have expertise, the client has an understanding of the existing way of working"**. Dominic Rea agrees that understanding is critical, saying **"We would work with the Client one hundred percent"**, explaining that **"This aspect is all about defining the best processes based on the customer goals and our understanding of those goals"**. Ian Farrar highlights the need for collaboration, saying **"Every product, every implementation we go through is tailored, yes"** elaborating that "**The IT and process team members collaborate, quite often the technical guys don't know the processes of the business"**. In tackling this collaboration Neil Rushby takes a customer focused approach, saying **"What we tend to do is offer the advice"**, describing that **"The customer then pilots that and if they find it is not working for them for what ever reason, we re-engineer that particular process"**,

whilst Simon Hulse takes a more pragmatic approach, saying **"in the last stages of selecting a system, there are usually areas where the application falls short, or it goes above and beyond what we expect"** pointing out that **"what we would do is we would listen to probably 95% of their gripes and what they want out of the system and we get down to the final 2, 3, 4 we evaluate it"** highlighting that **"the final factor is price, time scales and availability of third parties"**. The use of third party consultancies can add real value in this situation, as exemplified by Stephanie Snaith who says **"another bit that we add to that process as well when you are talking about collaboration, is interpretation",** explaining that **"the Client is saying this, the vendor is saying that, they think they are agreeing" "we are the triangulation and that's often … where we add value"**.

SUMMARY OF POTENTIAL CSF

Table 63: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 15: CSF 15: Extensive benefits orientated planning

CSF: A lengthy 5 month design phase was undertaken.

CSF Keyword: Extensive benefits orientated planning.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

A five month blueprint design process was undertaken by Bradford Council, this began in July of 2005 and was concluded in November, three separate stages were incorporated which are described below:

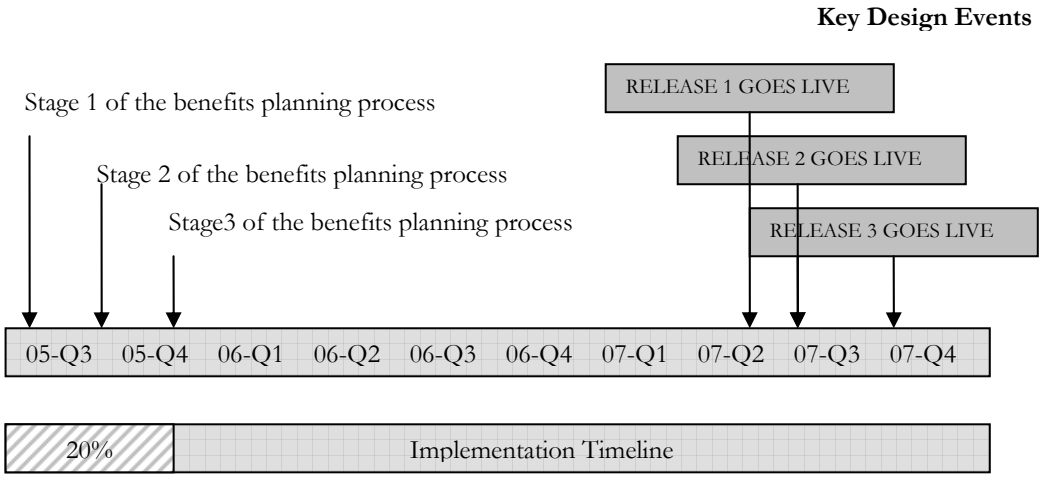
Stage 1 was the process team design. Stage 2 was the departmental team's view of the design, where the outcome of the process team design was used as the foundation to the blueprint mapping. Here the outlining of key issues became an ongoing process of identification and resolution, whereby individual sections were signed off upon completion of their integration into the overall vision. Stage 3 was the process validation workshops.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Extensive benefits orientated planning

The benefits planning tasks took five months and accounted for approximately 20% of the implementation process.

Figure 29: Key Design Events



PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding the benefits oriented planning, Susan Spink, the Program Change Manager commented **"Identified benefit, you don't mean cost benefit? You mean benefit to the organization. Access to data and accuracy of data? There were specialist design teams from each of the areas. So there was a payroll design team. HR design team. Finance design team. And procure to pay design team".**

This CSF was deemed to be accepted on account that specialist design teams were appointed to achieve this specific task.

PROJECT THREE - CONSULTANT INTERVIEWS (PROJECT THREE)

The case study highlighted that ensuring extensive benefits orientated planning was critical, which was a view upheld by five of the seven consultants interviewed. Wes Simmons agrees it is critical, saying **"there is no point doing the implementation and hitting 20% of the benefits of the project in the first pass. Where possible you need to tackle the big benefits"** describing that **"we tend to design first, and then move on, an example from real life is a customer who spun out of a larger business, their accounts system was being turned off in twelve months time, they took seven months to choose their supplier, which gave them five months to implement a very complex accounts system and they wanted to do a load of operational stuff in the end as well, so we said there is no way we are going to do all of that in five months"**. Ian Farrar suggests that the right amount of time to get the job done is critical, saying **"The business process management exercise [developed in collaboration with Durham Business School] is really to get a handle on what the processes are of the company and then we can fit our system to them processes"**. Dominic Rea explains that **"The degree of design depends on how well**

the business currently works", explaining that **"if the company has fundamentally good processes, fine… but if you have a situation where, the processes were designed around their old system, and actually there totally misaligned with the current needs of the business, then you are going to spend quite a bit of time to define or designing those processes"**. Hamid Aghassi firmly agrees and eludes to the fact that it is relative to the size of the implementation, saying **"It is certainly greater than five months in a big ERP system"** describing that in larger implementations **"there are those who do a year of design"** whilst Stephanie Snaith points that this is a financial implication, saying that **"extensive benefits planning, you don't want to be doing that after you have signed your contract"**. In contrast to popular consent, Neil Rushby points out that **"we sell the project on the fact that there is going to be no development work done, they are buying a standard solution"** and Simon Hulse further points out that **"once the system has been selected, we go for I would say a very quick approach. What the senior management is looking for is a quick return on investment"**.

SUMMARY OF POTENTIAL CSF

Table 64: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	5 Accepted 2 Rejected	5
	Total	6

Appendix 16: CSF 16: Business scenario enacting

CSF: Business scenarios were acted out representing real accounts.

CSF Keyword: Business scenario enacting

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The process validation workshops, where the final stage of the blueprint process was the validation, this involved ***using business scenarios representing real accounts*** of situations facing the Council and applying the set vision against this. Each separate session included between 3 to 15 staff depending on the nature of the process involved, each took around two full days to be designed and comprised of extensive situational risk analysis. The completion of all of the sessions resulted in the overall blueprint being signed off.

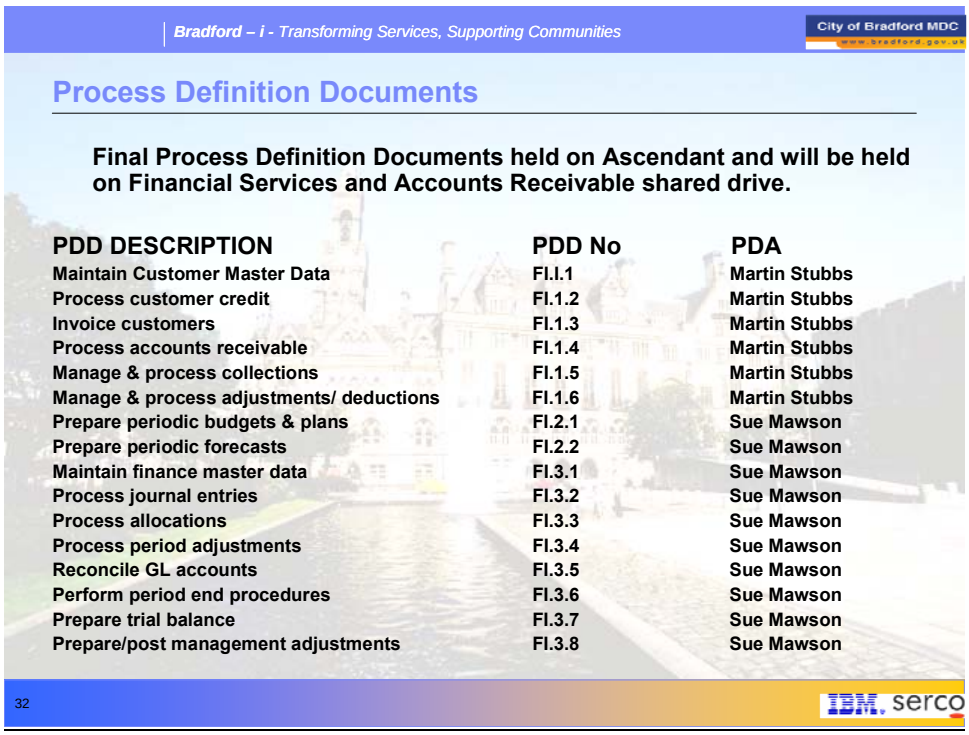
The measure of this success was determined against interim and final milestone dates. The measurement tool used was the "Seven Keys to Success program", which the integrated IBM business consulting service introduced (IBM 2009).

On a week to week basis reporting was undertaken to identify corrective action requirements and status. The status was recorded on a "red, amber, green" scale, where red was a serious problem that needed immediate corrective action to avoid an unacceptable outcome, amber was an emerging serious problem where corrective actions were required in the near term to avoid an unacceptable outcome and green was where planned resources were working well under the current plan and activities and dates could be expected to be successfully completed.

Business scenario enacting

To facilitate business scenario enacting, process definition documents were prepared. This was to test real live accounts of each area of the ERP system prior to launch.

Figure 30: Business Scenario **Enacting**



Source: Bradford Council internal document. Bradford-I ERP Project Finance Blueprint Version 0.4 (2005)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding scenario enacting, Susan Spink, the Program Change Manager commented **"Yes because it was benefits covering all aspects of benefits as well. Which became the hard part, I mean the identification of existing processes and mapping the swim lanes, and all of that, validating of how the "as is" and "to be" obviously identifies the benefits and sort of verifies the benefits as you are going along. That becomes apparent from working with the individual process teams"**.

Whilst Joanne Gott, the Accountancy Manager, commented **"There was a data capture exercise that informed the benefits realization plan. We did struggle with the data capture, partly because of the trade union involvement and the fear of time and motion studies of individuals and what they were doing. So we had some difficulties in capturing true and efficient data. In terms of feeding into the benefits realization plan it was difficult. It was tracked, and the way we captured the data changed along the way. The individual "Sarah" who did the majority of this work, is no longer with us. But I think it is fair to say, that it wasn't a smooth, visible and transparent tracking of the system… When you are reducing activities that are not actually producing value. That's the sort of thing that we captured. How true that was is questionable, if we are being honest"**.

This CSF was deemed to be accepted on account of the strong avocation towards this issue by the implementation practitioners. In addition, despite the difficulties of accurately mapping business scenarios, a high investment of resources ensured that this activity was undertaken. This suggests that the benefit of this activity outweighs the high cost associated with its undertaking.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that ensuring business scenario enacting was critical which was universally accepted by all of the consultants interviewed. Wes Simmons agreed it is critical, saying **"The first thing we do is a live data transfer"** explaining that **"in terms of business scenarios, in a larger project we will typically do sort of a conference room pilot on a user acceptance training"** but also describing that **"when you get to the user training stage, if you don't do it on their own data they get confused. They start asking questions about the data rather than what the system is"**, explaining that business scenario is better that parallel processing, saying **"what we say to them is don't do parallel**

processing, think over the last year, think of all the old transactions that you have done and then put them in a training pack, or a test pack. If you do parallel running, sods law says, you do parallel running for three months and in month four come all the odd transactions that you have never tested and then first day of go-live, those are the transactions you get to go through". Dominic Rea says that **"the go live should be a non event and if you have done this bit [Business scenario enacting] correctly then it will be"**. Simon Hulse outlines that **"we don't really start training until we have real live scenarios"**. Neil Rushby further promotes its early use, saying **"I agree, we take all of their data right from day one"**, elaborating that **"The majority now have one [legacy database], there are some customers who have two or three data sources"**, whilst Stephanie Snaith goes on to suggest that it is about more than using live data, but integrating that data, saying **"It is essential, and because it is end to end, you make sure that what the finance team, the sales team and the production team have said all hangs together"**. Hamid Aghassi agreed with business scenario enacting, saying **"absolutely, it is called migration. It is integral to the whole of the programme"**. Whilst in putting this into practice, Ian Farrar points out that **"we have two systems, a test system and a live system and that's ran right the way through the life of the product"**.

SUMMARY OF POTENTIAL CSF

Table 65: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 17: CSF 17: Conservative appraisal of the benefits

CSF: An initial £5m and subsequent £30m benefit was outlined.

CSF Keyword: Conservative appraisal of the benefits.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

To achieve a cash valuation, Bradford Council undertook a formative knowledge gaining exercise which involved key departments of the organisation feeding information back to quantify time savings. In this process, key issues were highlighted and time saving allocations were attributed to each, these key issues were: (i) budgeting which was attributed 2 days per week savings in all departments, totalling 100 days per year, (ii) forecasting which was attributed to a reduced number of forecasts required from 11 to 4, totalling 550 days per year, (iii) journal entries which were attributed 10 days a month savings across all services due to eradication of miscoding of journal entries, totalling 120 days per year, (iv) automation of recharges (reduced effort at year end to process recharge) was estimated to save 30 days per year and the workload reduction for services received but not paid, totalling 60 days per year, (v) bank accounting which was attributed an estimated saving in time of 1 hour a day for 2 people, this equated to 60 days per year, and finally (vi) external reports which were attributed 2 days per week savings in all involved departments, totalling 35 days per year. As such the total quantified savings in terms of savings per annum, this was identified as 1075 hours.

The 2009 published update (Bradford City Council 2009) highlights that the cash realisation of the new ERP system is anticipated to be £30 million, which comes in 2 parts: (i) the level of savings which have been identified which are between £10m – £14m over the next 10 years, depending upon the level of organisational re-design the Council is prepared to undertake and (ii) the 'improved strategic sourcing' which are estimated to deliver cash realisable savings of £16m.

However, possibly more importantly is the pre-implementation assessment of BR, this was assessed in terms of cash and service benefits, with this system initially being attributed with a £5,035,000 saving in 2005 (with the total initial capital saving contributed for £2,385,000 and anticipated life cycle of 10 years and a yearly saving of £265,000), which was a ***conservative appraisal*** given that the current outlined saving contributions is £30,000,000. This cash value can be separated out, and can also be reflected in terms of day's savings per annum. The key issues at this initial evaluation were outlined as being cash savings from decentralised budgeting which primarily resulted from: departmental ownership of budgets and was anticipated to attribute for a £180k saving plus £20k on an annual basis, quarterly forecasting and monthly monitoring which primarily resulted from automation of forecasting reports and were anticipated to attribute for a £720k saving plus an annual saving of £80k, commitment systems which primarily resulted from contractual service contract maintenance and were anticipated to attribute for a £900k saving plus an annual saving of £100k, journal entries which primarily resulted from system facilitators entering Customer data information and were anticipated to attribute for a £360K saving plus an annual saving of £40k, allocations which primarily resulted from statistically driven analysis towards staffing contributions and were anticipated to attribute for a £180k saving plus a £20k annual saving, and finally the last identified benefit was that of bank reconciliations which primarily resulted from the automation of bank statements and were anticipated to attribute for a £45k saving plus a £5k annual saving.

Conservative appraisal of the benefits

Figure 31: Identified Benefits

Benefit	Description	Potential	Type	Key enablers	Critical actions
Decentralised budgeting	• Cost centre managers to set own budgets within departmental total • Number of virements greatly reduced and no separate control system required	£20k p.a. / £180k total	Cash	•SAP training •Financial skills training	• New role definition for selected Finance staff and for all cost centre Managers • A significant effort on training to ensure that Finance will become expert advisors only. • Identify reduced staffing by department
Quarterly forecasting & monthly monitoring	• Budget holders will run reports within SAP and perform monthly monitoring. • Forecasts will be manually calculated and input into SAP quarterly • Finance will assist in producing forecast and review overall position on an exceptions basis • There will be some areas where monthly forecasting may still be required in volatile areas.	£80k p.a. / £720k total	Cash	•SAP training •Financial skills training	• New process for quarterly forecasting to be introduced • Identification of volatile areas where monthly forecasting may still be required. • Training will need to be provided to budget holders • Central Finance will need to put in place a directive and a timetable for the budget holders to adhere to (action planning with Central Finance)
Commitment System	• Commitments will be automatically maintained in SAP for orders raised • Manual commitments may still be required for significant future commitments.	£100k p.a. / £900k total	Cash	• SAP training • Financial skills training	• SAP is a commitment system, which results in the standalone system being obsolete. Standalone systems must no longer be maintained for SAP transactions
Maintain Finance Master Data	• All finance master data will be maintained centrally to ensure consistency and accuracy • Requests from Services will be reviewed by the finance group before action.	n/a	Service	• Compliance to accounting standards • Compliance to new ways of working	• Create and implement request process, request forms, and measures
Journals	• Journals posted directly into SAP by Finance and the Services. • Services will post cross directorate JV's. There will be a limited number of people who can do this. • The need for Journals will reduce as most SAP postings are automatic and will also be corrected at source. • The cost centre manager will be responsible to check for mispostings	£40k p.a. / £360k total	Cash	• SAP training • Financial skills training	• Limited access to authorised users for cross departmental journals – which must be agreed by both parties. • Budget holders will be able to journal within their own cost centre
Allocations	• Allocations will be automatically posted based on statistical key figures such as head count etc. These allocations will continue to be posted by Finance • Departmental recharges can use allocation but this will not give a significant saving.	£20k p.a. / £180k total	Cash	• SAP training • Financial skills training	• Statistical key figures agreed between departments
Bank Reconciliations	• Bank statement items will be processed automatically to clear the bank clearing accounts. This work is carried out by Central Finance	£5k p.a. / £45k total	Cash	• SAP training • Financial skills training	• Downloading of bank statements into SAP on a daily basis
Total Cash Benefits		**£265k p.a. £2,385K total**			

Source: Bradford Council internal document. Bradford-I ERP Project Finance Blueprint Version 0.4 (2005)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding the conservative financial appraisal, Susan Spink the Program Change Manager commented that this is **"Built into the contract and built into the business case"**, whilst Joanne Gott, the Accountancy Manager commented **"That was agreed pre contract"**.

This CSF was deemed to be accepted on account that pre and post contract business case financial evaluations were built into the business case in a gradual realization of the benefits the system offered.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that undertaking a conservative appraisal of the benefits is critical, which is a view held by four of the seven consultants interviewed. Hamid Aghassi believes it is critical, saying **"You have to know what benefits you are going to offer"** explaining that **"You should quantify the benefits right at the beginning and monitor it all the way through and after it is delivered"**. Dominic Rea also agrees saying **"I have been working in this organisation for over twenty years now and my customers will testify that we have helped customers actually stay alive, that wouldn't have done without putting SYSPRO in. I could take you to a company two hundred yards down the road that bought from me in 1995, their turnover was fifteen million, their project director needed a decent ERP system and he chose SYSPRO to help them grow, their now sixty million turnover and they haven't increased their staff by anything like four times"**, explaining that **"The financial benefits to him were absolutely tremendous, but he didn't over sell it upfront, he sold it just enough, so he ended up becoming a hero because we ended up gaining far more financial benefits from implementation than he promised his paymaster"**. Dominic Rea continued, saying it is important as **"Our industry is rife with sales guys who over promise things"**. Stephanie Snaith agrees also that it is critical, but says **"It is actually very difficult to do an ROI on an ERP implementation"** and goes on to say **"We have been involved in a few instances of picking up the pieces afterwards [where the system has been oversold and underperformed]"**. In addition Wes Simmons says **"It is critical to get the project off the ground"** explaining this point by saying **"I think it is critical in so much that it is what they do in their own mind to justify whether they do it [implement] or not"**, going on to say **"during the pre sale process we will help the customer formulate the benefits and plan them"** and explaining further that **"We have had companies that have doubled their turnover whilst their head office staff have stayed pretty much the same, because they have got our system in"** although saying **"But those things are very difficult to put monetary values on"**.

However, a number of consultants do not advocate undertaking a conservative appraisal; Ian Farrar agrees that **"It is very hard to give an ROI on a product of ERP"** but explicitly states that **"It is very much a post go live thing, we can look back and say, in six months a year we have saved this much"**, where as Neil Rushby says **"[WE] review the implementation against those SMART objectives, but beyond that we are not looking at anything that comes from the sales side of things"** and at the extreme Simon Hulse states that **"We don't, or at least to my knowledge, document and formulate a benefit per man hour, or anything like that as you would probably expect"** but does acknowledge that **"To be fair to me, I might not have that information at my level"**.

SUMMARY OF POTENTIAL CSF

Table 66: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	4 Accepted 3 Rejected	4
	Total	5

Appendix 18: CSF 18: Linked with a vision

CSF: Linked with the Council's 2020 vision.

CSF Keyword: Linked with a vision.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council aimed to be one of the UK's top performing local authorities, and was committed to delivering a high quality service to the citizens of the community for which it serves. This strive for improvement began in 2000, and the cornerstone of this has been the development of two key driving organisational forces:

1) The Council's 2020 vision – In the year 2000 a 20 year plan was initiated which provided the City with a framework to "promote and improve the social, economic and environmental well-being of present and future generations" (Bradford City Council 2006).
2) The Council's Community Strategy 2002-2007 – In 1999 Bradford Council carried out the largest public consultation exercise in its history which set out the journey to "deliver a long term vision for people, communities and organisations in the District" (Bradford City Council 2002).

The overall strategy for ERP implementation was linked to the Council's 2020 vision and five year Community Strategy and Corporate Plan. This undertaking would be heralded as the system that helped Bradford Council achieve its overall corporate objectives as being one of the UK's top performing local authorities.

Undertaking the Council's 2020 vision and the Council's Community Strategy plan for 2002-2007 both align with directed central government policy. The complementary issue of implementing e-government by 2008 works towards achieving their strategic e-government goals and on an annual basis Bradford Council published its progress.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Linked with a vision

OBSERVATIONAL SUPPORT DOCCUMENTATION

In line with the corporate vision, Bradford Council aimed to make significant improvements across their organisation. Bradford Council was committed to deploying CRM support across the Council. These initiatives were designed to expand the scope of the Council's frontline services, improve the support to the Council's customer service teams in face to face contact and establish a system of enabled self-service for the citizens of the community. Therefore, ERP was going to be used as a strategic tool to support the customer focused vision and corporate objectives (Bradford City Council 2009).

The benefits associated with the CRM initiative included:

- Improved access - a greater range of services will be accessible through the contact centre and face to face access points and electronically over the web.
- Improved customer service - consistency of service across a broad range of services, greater understanding of customer interactions.
- Increased customer satisfaction - more enquiries resolved at the first point of contact, increasing use of self service.
- Improved accountability through the use of Case management tools and audit trails.
- Full integration to Council back office systems.

The ERP implementation was technology driven change management, it embodied the organisations vision to deliver superior customer services.

The expectations of the project were encapsulated in outlining what the previous system delivered and managing expectations of the new system. This was particularly carefully managed for each individual department and their BR possibilities. The communications towards the personal development of staff members was an important issue; this was specifically related to the skills and knowledge sharing which would occur in relation to career development. Providing regular hints and tips were a key aspect of ensuring staff felt they were benefiting from the introduction of this new system. The communication of the overall benefits to the citizens of Bradford for which this would serve, revolving around how the system shaped up in terms of the systems which would be made available and promoted

against the proposed final product. ERP itself was promoted as 'the answer' to contract management and the impact this would have on departmental benefits was emphasized. Change management was recognised as a key issue, managing resistance and providing support for staff revolved heavily around training and involving staff in the overall process. The overall project performance was measured against a "seven keys" scorecard system and project successes and failures were both promoted.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding linking ERP to the Council's 2020 vision and five year Community Strategy and Corporate Plan, Susan Spink, the Program Change Manager commented **"the Council's 2020 was part of the bigger picture, but it wasn't the main driver. It is a driver, you can argue it anyway which was the main driver. It was a driver, yes. From a contingency point of view, you had a payroll system which was about to fail. From a planning point of view and delivering the 2020 vision, that is a different aspect. That is around releasing efficiencies to the front line"**.

In addition Susan Spink commented **"yes it was part of a wider agenda for the Council because the whole contract with IBM/ Serco was about putting in a foundation, a platform, a system to enable the Council to take ICT forward and obviously ERP was a very large element of that but it sits alongside the new revenues and benefits system, many other things that still building on that platform"**.

This CSF was deemed to be accepted on account that it was certainly acknowledged as an important influencing factor in the success of the implementation. However, it is important to note that it was not the main driver, but part of the bigger picture.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that linking with a vision is critical, which is a supported by all but one of the consultants interviewed. Hamid Aghassi outlines its criticality, saying **"of course if you don't have a vision, then it will of course fail"**, Dominic Rea reinforces this point by saying **"absolutely, it almost goes without saying. Whether we contribute towards that vision, or we just react to that vision. The vision should come from the CEO or the MD of that business"**. Neil Rushby outlines that the Vendor can play a key role in instilling the vision, saying **"we try and plan forward and link with a bigger vision**. **One of the big things I harp on to all of them is planning the next phases"**. Simon Hulse makes the point that "**The vision is globally accepted**", explaining that **"The initial driving force is**

that we want to implement Microsoft Dynamics CRM" and that **"we could link together the marketing and sales and finance, pipeline reporting, into a single application"**, further explaining that **"there is always a second vision that comes"** specifying that this is one **"which is to share information"**. Ian Farrar illustrates this point by explaining **"often what happens is we go into an organisation and we pull out a white board or projector and just see live data, where we are in terms of production, stock or cash in bank"**, explaining that **"We can give that vision"**. In conclusion, Stephanie Snaith makes the poignant point that **"I think linked with that [linking with a vision] is cascading the goals down, because you need to interpret them. The lower down the hierarchy you go, you do need to interpret them because it is much harder for someone who is pushing the buttons to get the big picture, but they need to understand their part in the picture"** explaining that **"we are taking the knowledge out of their heads, so making them vulnerable, where they have always been protected before because only they knew how to do it. So therefore you have to catch the ultimate vision in a way that they can buy into"**. In contrast, Wes Simmons believes that linking with a vision is not critical, saying that **"I would not say that it was critical",** commenting that **"a lot of companies do ERP, for what I call a distress purchase"**, explaining that **"they don't see any of the wider benefits"** decribing that **"On average, I would say most companies are implementing ERP because they have to do it, rather than because we want to, it would be about 60 to 40 ratio, because it's a visionary thing"** explaining that **"they don't get any benefits from it, they have just fixed a problem"**.

SUMMARY OF POTENTIAL CSF

Table 67: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	6 Accepted 1 Rejected	6
	Total	7

Appendix 19: CSF 19: Benefits orientated delivery

CSF: Technical aspects ran parallel with the benefit scope road maps:

CSF Keyword: Benefits orientated delivery.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council implemented a ***parallel integration of technical and realisation roadmaps***, the scope of these were managed using the "Seven Keys to Success" program.

The technical road map was scheduled from April 2006 until January 2009, this three year schedule incorporated all aspects of technical issues in the mapping process. The realisation road mapping was an essential aspect of the process. This was scheduled from December 2005 until 2010 in a five year plan. The categories included ERP for releases 1 (Finance), 2 (Procurement) and 3 (HR and Payroll). Aspects of CRM which fell in line with the Council's overall corporate strategy were integrated into each release; web content management, revenues and benefits, enterprise information portal, local land charges, and geographical information systems.

Realisation road mapping was an essential aspect of the process. This was scheduled from December 2005 until 2010 in a five year plan. Initially, during the first year, the scope of the tasks was outlined, here the development and testing were plotted, and piloting and gap identification were a part of this process. The following two years concentrated on a three phase integration, which allowed for significant intervention by the development team, particularly during the pilot phase, which were also an important part of phase two (internal release) and phase three (external release). The final two years derived realisation from a more sustainable, physical aspect, in collaborations and visual aspects.

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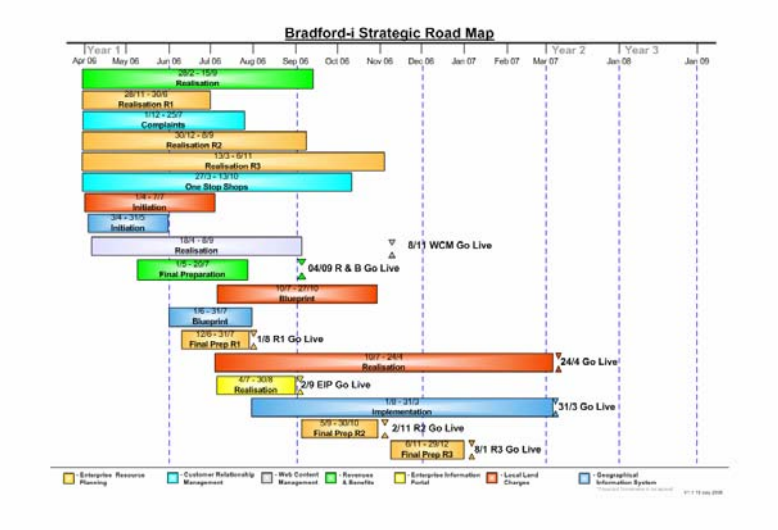
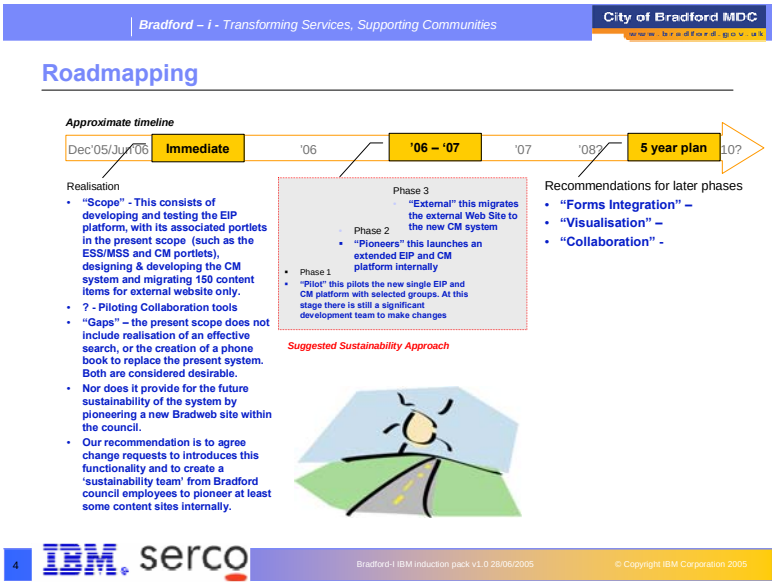
Strategic Road Map

Figure 32: Strategic Road Map



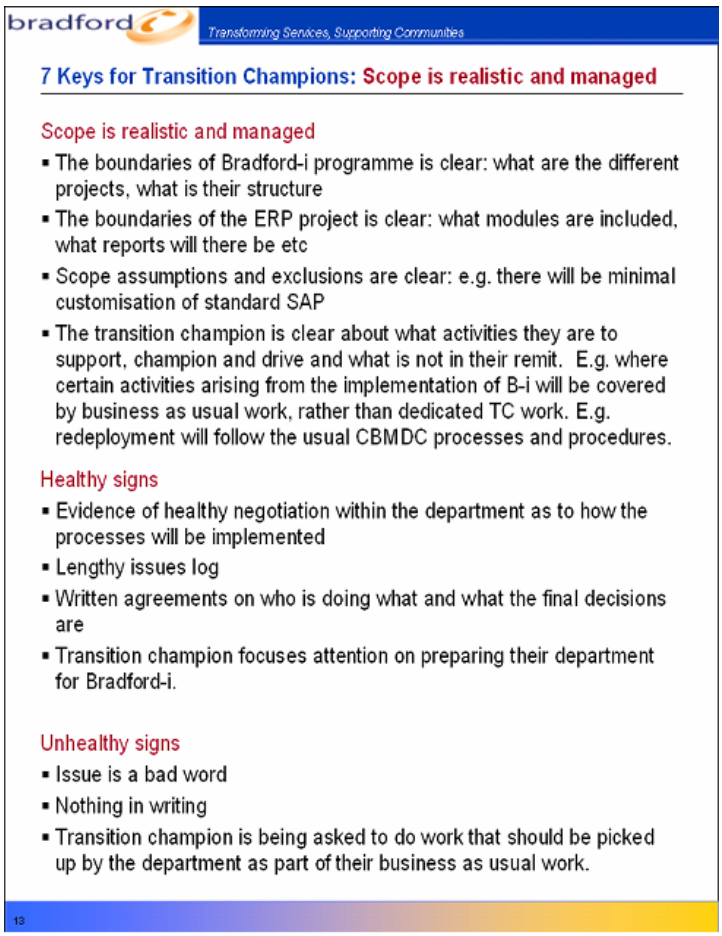
Source: Bradford Council internal document.

Figure 33: Realization Roadmap



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

Figure 34: Managing and realising scope



Source: Internal Document Ref – 7 Keys to Success for Transition Champions (March 06)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding the Strategic Roadmap, Joanne Gott, the Accountancy Manager commented **"I think if we are being truly honest, the strategic road map pace was not going at the speed of the implementation, because we had external contractors working with us to implement within the time. I think the Strategic roadmap was somewhat behind the implementation. And the implementation superseded the Strategic road map. We had a finite time of getting the project in place and we hit those targets but some of the Strategic change management issues and what needed to occur fell by the wayside"**.

Establishing a benefits orientated delivery was deemed to be rejected on account that the implementation necessities were undertaken to first, and some of the pre planned, benefits orientated activities such as the Strategic Roadmap were ranked with a lower importance. The vendor was very milestone orientated in terms of the delivery of the technical aspect of the implementation, whilst the BR aspect was not as an accountable activity.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that benefits orientated delivery was not critical, which was a view held by only three of the consultants interviewed. In discussing if the technical roadmap precedes the benefit roadmap Simon Hulse believed it was critical, saying **"Yes, this absolutely happens. It is our role to ensure we adhere to the schedule. I would say we are contractually obliged to"**. Dominic Rea agreed with this, saying **"You have to be able to see the wood for the trees"**, explaining that **"everybody has to be made constantly aware of the bigger picture, of which the milestone is a cog in the wheel"**. Neil Rushby suggests that **"If we have identified a goal or a benefit through the SMART objectives, we are always looking to deliver those first and foremost"**. However, Ian Farrar disagrees that this is critical, making the point that **"a lot of the benefits can be achieved pre sale, to win the business"** explaining that **"once we have won the work, it is up to them to achieve those benefits"**. Hamid Aghassi suggests that **"It is very difficult to get a supplier to agree to a benefit realization, which is outside of their control"**, he agrees that the job of the Vendor is to be focused on the technical aspect, saying **"I think it is right that milestones take priority, but benefits also need to be delivered. If you have got intangible benefits, it is very difficult to delay the milestones because of these intangible benefits"**. Wes Simmons also believes it is not critical saying **"We tend to stop when we have delivered it, we would deliver the technical, that's the bit we get paid for"** going on to explain that **"The benefits are then up to the Client to realise those. This is something we have very little control over"**.

SUMMARY OF POTENTIAL CSF

Table 68 Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Rejected	0
Consultant	4 Accepted 3 Rejected	4
	Total	4

Appendix 20: CSF 20: Communicate the benefits

CSF: A communications grid was utilised mapping channel with audience for maximum effectiveness.

CSF Keyword: Communicate the benefits.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council undertook a complex matrix by which the appropriate communication channels were identified so that key messages could be delivered to the right audience. The first task undertaken was to ***categorise the different audiences involved in the communication process and draw up a communications grid.*** This was more of a formative activity and seven stakeholders were identified**,** and included: the programme board, top management, programme team, elected members, directors, heads of service and council staff. The second task was to identify appropriate communications channels, these varied widely as the nature of the audience was very broad. The spectrum of identified channels covered: programme meetings, briefings, video, presentations from Bradford-i, Council newsletters, Bradford-i newsletters, e-newsletters, intranet postings, staff events and elected member events. To ensure the target audience were engaged and to maintain interest, the content was made factual and interesting; the guiding principles revolved around being honest, open and up-to-date. One example is updating staff via email regarding organisation wide system benefits.

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Figure 35: Inter-organisational Communication Channels

bradford *Transforming Services, Supporting Communities*

Proposed Communications Channels

Audience \ Channel	Programme Meetings	Cascade briefings	Video	Presentation from Bradford-i	Council newsletters	Bi Newsletter	HTML/email bulletins	Intranet	Staff events	Elected Member events
Programme Board	✓	✓								
Top Management	✓						✓			
Programme Team		✓				✓	✓	✓	✓	
Elected Members	✓						✓			✓
Directors/ Heads of Service		✓	✓	✓	✓	✓	✓	✓		
Council Staff (impacted departments)		✓	✓	✓	✓	✓	✓	✓	✓	
Council Staff (non-impacted departments)		✓	✓		✓			✓	✓	

6

Source: Bradford Council internal document. Internal Document Ref – Bradford-i Communications Strategy (June 2006)

Figure 36: E-mail Regarding Communication of the Benefits

From: ERP Change Team

Sent: 09 March 2007 17:28

To: All E-Mail Users - Officers

Subject: Important Message for All ESS / MSS Users

Importance: High

For All ESS / MSS Users - 4 Weekly Paid Staff

Hopefully you will all now be aware that your next pay (on 13th March 2007) will be processed through the new Payroll system, SAP. The payroll has now run for 4 weekly paid staff and therefore you will now be able to view your payslip online if you have ESS.

A new software package, Adobe Acrobat Reader 7.0 will be installed automatically on all PCs when staff next restart their PC.

Car Mileage & Expense Claims

Please can I remind all staff that car mileage and expense claims will not be paid through your pay. These are processed through Accounts Payable and therefore, a remittance advice will be sent to you.

Due to the new payroll system, there is a back log of car mileage and expense claims being processed and payroll are currently working through them as quickly as possible. During this time, please do not contact payroll with issues that relate to car mileage and expense claims to enable the payroll staff to focus on resolving pay issues.

As with all new major systems there is a possibility of some teething problems and your help and co-operation is appreciated in this time of transition.

Sincerely

Bradford-i Change Team

Email: ERPChangeTeam@bradford.gov.uk

(The information in this e-mail and any attachments is confidential. It is intended solely for the attention and use of the named addressee(s). If you are not the intended recipient please notify the sender immediately. Unless you are the intended recipient you are not authorised to, and must not, read, copy, distribute, use or retain this message or any part of it.)

This email has been sent with the permission of Paul Leese, Strategic Information Manager (Lead Change and Business Management).

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding communication of the benefits, Joanne Gott the Accountancy Manager commented **"The workshops were council led, and IBM sort of listened to the requirements, to help build the function and service on specification. The key stakeholders were nominated by all the directors and assistant directors who attended those workshops. These are the key influential people who would know how the front end processes worked"**. Susan Spink, the Program Change Manager also commented **"there were numerous workshops, specifically designed for the particular release we were working on. And with a set of Change Champions, which were known as transition champions that ran for nearly four years, and they were a group of fairly vocal people, that felt comfortable in the arena in which they were aiming to address their fears and issues, and have them Identify Critical Success Factors. Now, if I am entirely honest, the organization could have responded better to some of their queries, which we still have now. It could have addressed them then. But again, we were up against a wall to get this in and on time and within budget. Which we did"**.

Susan Spink also commented **"The transition champions were the people who fed back from the shop floor. We really did try to pull in what the transition champions were saying. Because as well as the transition champion network, there was the super user network, we had to have these people on board. But equally you are mindful of what you are working towards. There becomes some tension, and there has to be some give. There is a balance"**.

This CSF was deemed to be accepted as, in terms of ensuring the correct processes were instigated there was an emphasis on workshops. In addition, the transition champions were an important tool in achieving this objective.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that communicating the benefits was critical, which was a view outrightly rejected by all of the consultants interviewed. Dominic Rea for instance comments that **"My honest view is that this is the job of the Client, because they uniquely know the politics internally, sometimes we are not privy to that"**. Ian Farrar re-enforces this point by stating a number of relevant points: **"Quite often it is a sensitive issue, people won't often know they are getting an ERP system, or the current ERP vendor is getting kicked out for a new supplier, so it can be a sensitive issue"**. Neil Rushby makes the additional point that any communication undertaken is done so through a limited number

of people, in addition he makes the point that this is only ever in relation to performance, saying that **"The sponsor is the person who I would typically deal with to make sure the vision that our consultant believes the project is up to and their project manager believe the project is up to, tie together. That is as far as the communications go"**. Indeed, Simon Hulse holds a stronger view, advocating the establishment of no communications integration system at all, saying **"No, I would guess that we as an organisation don't [set up an communications grid], I wouldn't say it is irrelevant but I don't think that we as an organisation have the issue that you are raising"** which is a view held by Wes Simmons who says **"No we don't. There is no reason other than we generally expect the Client to do that"**. Explaining further that **"We are a systems implementer, so we are there to implement the system"** and elaborating further that **"it would be like the electrician coming around and saying you could save on your electric by improving your lighting. They would turn round to us and say, just fix it. I am not interested in your design thoughts"**.

SUMMARY OF POTENTIAL CSF

Table 69: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	0 Accepted 7 Rejected	0
	Total	1

Appendix 21: CSF 21: Deliver strong interdepartmental communications

CSF: The project team developed good internal relations throughout the organisation.

CSF Keyword: Deliver strong interdepartmental communications

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council undertook a seven month process of outlining a comprehensive communications strategy which began in June of 2005, and was a key responsibility of the Bradford-i project management team. Key programme messages and themes included outlining strategy, expectations from the system, personal development of staff members, benefits to the organisation, solutions to problems, change management, and performance measurement, which are described in detail below:

This was particularly carefully managed for each individual department and their BR possibilities. The communications towards the personal development of staff members was an important issue. This was specifically related to the skills and knowledge sharing which would occur in relation to career development. Providing regular hints and tips were a key aspect of ensuring staff felt they were benefiting from the introduction of this new system. The communication of the overall benefits to the people of Bradford for which this would serve, revolving around how the system shaped up in terms of the systems which would be made available and promoted against the proposed final product. ERP itself would be promoted as 'the answer' to contract management and the impact this would have on departmental benefits was emphasized. Change management was recognised as a key issue, managing resistance and providing support for staff revolved heavily around training and involving staff in the overall process. The overall project performance would be measured against a "seven keys" scorecard system and project successes and failures would both be promoted.

The interdepartmental communications were monitored using the "Seven Keys to Success" system. One example can be seen in the distribution of "Go Live" cards to all users, where a system of distribution was set up using interdepartmental communication.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford Communications Strategy

PROJECT TEAM PLACEMENT OBSERVATIONS

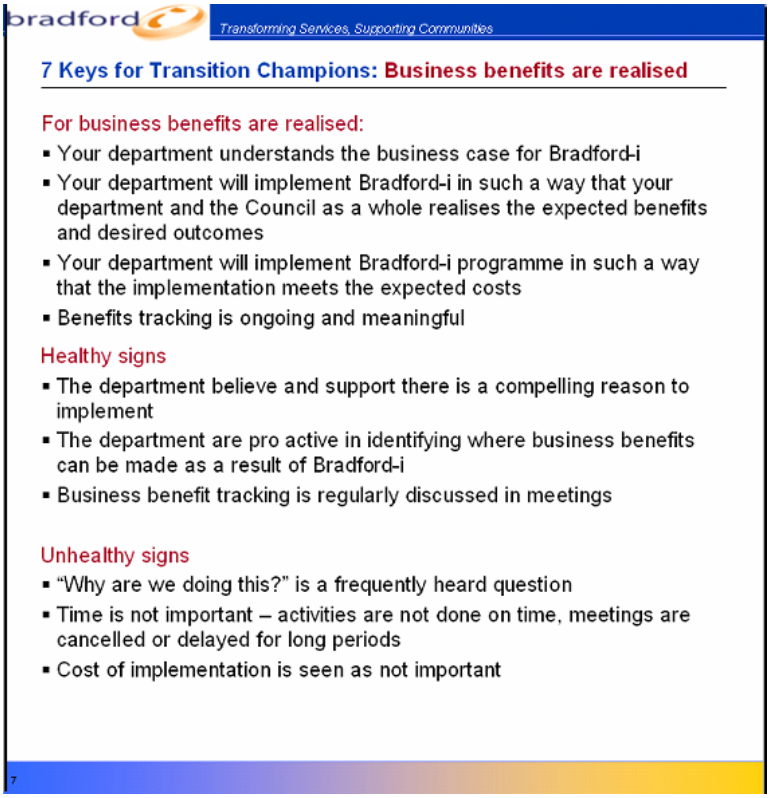
Figure 37: Key Programme Message Themes

Timeframe of message start point

	June – Rational of Bradford-i	July – Realisation	August – Future possibilities	September – How we make it work	October	November	December
Strategy	Why Bradford-I Link Council strategy 2020/CPA 5 year vision			Improving ability to deliver			
Expectation	What current contract delivers	Managing expectations re Benefit delivery		Managing expectation re Benefit delivery/What department gets for budget			
Personal Development		Change Leadership Workshops/ Partnership/ Leadership Behaviours Hints and tips	Skill share on Career development Hints and tips	Hints and tips	Hints and tips	Hints and tips	Hints and tips
Benefits	Benefits delivered in current scope	Benefits delivered in current scope	What it could look like	What it could look like	What it could look like		
Solution		This is THE contract solution		What we are doing works/Benefits for impacted Depts			
Change Management (inc Training)		How managers will support staff	Managing resistance / How managers will support staff				
Performance	Scorecard		Scorecard	How are we performing	How are we performing	How are we performing	Scorecard How are we performing

Source: Bradford Council internal document. Internal Document Ref – Bradford-i Communications Strategy (June 2006)

Figure 38: Realising Business Benefits



Source: Bradford Council internal document. Internal Document Ref – Bradford-i Communications Strategy (June 2006)

Figure 39: E-mail Regarding Distribution of Go-Live Cards

From: ERP Change Team

Sent: 15 February 2007 19:16

To: Gary Wood (City Hall); Duncan Graham (City Hall); Chris Rhodes; Sally Tomlinson; Julie Barker; Kath Gurney; Sue Wilson (Jacobs Well); Majella O'Malley; Andy Ross; Sheila Widdop; Jill Wood; Julie Watts; Debra Harker; Sue Megson; Diane Booth; Stuart Imeson; Mark St Romaine; Khadijah Jamil; Patrick Rushgrove; Narinder Williams; Kerry Finan; Karen Fogg; Husna Khalifa; Shelley Stephenson; Louise Slow; Saj Ali; Carol Mullins; Carol Stos; John Doherty; David Heath; Karen Kirkpatrick; Adrian Tolley; Christine Holden; Mark Suggitt; Sheila Jozefek; Stuart Byrnes; Caroline Forsyth; Jo Tomic; Patricia Tillotson; Lin Gaitely; Christina Creed; Dorinda Coles; Katie Phillips; Rahila Nazir; Beatrice Williams

Cc: Christine Smith (ICT); Sarah Cullingworth; Andrew Norton

Subject: Distribution of Go-live Cards

Dear All,

As part of the ESS/MSS Go-Live on Monday 19th February, we have produced some Go-Live cards with information on ESS/MSS & where to go for support.

We are wanting to distribute these cards in the same way that Pride@Work is distributed in order to reach as many staff as possible.

The number of cards we want to distribute for your area are on the attached document which we obtained from Pride@Work.

We would be extremely grateful if you could please arrange for these cards to be distributed out to staff as you currently do with Pride@Work.

If you feel that the numbers given for your area are too many, please let us know and if possible return these to the below address. If you require more to be sent to you, please also let us know and we will send more to you. I will be posting/delivering these batches to you in the next 2 days.

Many thanks

Vicky Myers
Change Management Officer
Bradford-i
3rd Floor
Howard House
Email: Victoria.Myers@Bradford.gov.uk

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

According to Susan Spink, the Program Change Manager **"In regards to dealing with interdepartmental communications, you could probably say it was both the Bradford-i team and senior management. The Bradford-i board used to meet and still does meet on a regular basis throughout the life cycle of the project and they are looking at it from a more high level perspective. The project team also has a role in supporting the Transition Champion network which was there to review the benefits, because it addressed the problems they have to enable the benefits to be realized. Yes, they had a key role as they attended the Board and ran the network... The Bradford-i project team was key for communicating departmental information to top management. It was the only method!"**.

Regarding communications, Joanne Gott, the Accountancy Manager also commented **"Even now, the follow on from the ERP element... The corporate enterprise steering group now pick up those, it is still ongoing, we are still actually picking up any issues and activities and developments which are needed… Each element had a steering group and then there were cross cutting ones for the change.". In addition, Jagdev Singh, the Technical Manager commented "That's more ERP than Bradford-i in general"**.

Discussion point: This CSF was deemed to be accepted as the Bradford-i team members played an integral part in achieving this task. In addition, strong communications appear to be an important long term objective, now taken over by a corporate enterprise steering group.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that delivering strong inter-departmental communications is critical, this was a view held by each of the seven consultants interviewed. Stephanie Snaith suggests that **"the conference room pilot, that's a good tool for doing that [setting up the initial key functional connections]"**, which is a point that Neil Rushby agrees with, stating that **"We actively get involved with each department, we would sit down, go through our best fit, best way of using it, they would then pilot and come back"**. There is however contention as to whether this should be supplier or client led, Simon Hulse for instance advocates a Supplier led approach, commenting that **"The marketing team over the last twelve or fifteen months, have taken this issue, we didn't have this before then"**, stressing that **"this helps build momentum throughout the organisation"**, whilst Ian Farrar proposes a client led approach, saying **"There is a strong interdepartmental**

communications, but it is from the Client to us", outlining that this is knowledge transfer from the Client to the Supplier, stating that **"we need to know exactly which processes they need"**, and specifying that **"we need to understand for example what the accounts staff really need to get out of the system"**. However, in Supplier led situations, there can be complications, on this issue Dominic Rea makes the point that **"Well it isn't our ERP system, it is the Clients"**, elaborating further that **"We can take the horse to water but we can't make them drink it"**. Irrespective as to whether it is supplier led or Client led, it is essential that inter-departmental communications happens, Wes Simmons again reinforces this point, saying **"Yes it is vital that you do [communicate with head of departments], it is vital that you speak with them"**, but goes on further to highlight that serious problems can occur if it is overlooked, giving a specific example of a recent implementation, he comments **"there wasn't departmental communication in finance and some part was left out, so we had to go back and revisit it"**, this can be taken to its extreme, Hamid Aghassi lucidly describes this situation stating that **"You would get process owners and process experts"**, highlighting further that **"If a department head is on board in this change programme and wants to be part of it then they would become the process owner"**, but explicitly pointing out that **"If they are not on board, either they need to go or the programme fails"**.

SUMMARY OF POTENTIAL CSF

Table 70: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 22: CSF 22: Staff selection

CSF: Good managers and technically able staff were identified for the project team members via specific job specification requirements.

CSF Keyword: Staff selection.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In assembling the key members of staff for the project team, the key ***roles were initially outlined and then allocated on a job specification basis*** to assist with the recruitment process.

1. Initially, an IBM Training lead was outlined, which was to act as a single point for all training matters and produce a training remit for the organisation.
2. An ERP workstream lead was outlined who would be responsible for liaising between process development and training implementation in a transitional support role.
3. A Council training lead was outlined who would act in a promotional capacity to identify and tackle resistance from end-users, specifically in relation to training needs.
4. A Council training administrator was outlined who facilitated the training room bookings, appointment invitations and to generally maintain a schedule of all training activities.
5. Fifty two super users were outlined, who would be utilised to develop and pass on expertise and provide support and assistance to users during end-user training.
6. Finally the Council trainers were outlined, who would prepare and deliver the training courses, assist in the business scenario settings and provide any training materials necessary.

Staff selection

Figure 40: Project Placement Job Specification - Training Officer

The Training Officer will be responsible for providing training administration support to the Bradford-i training programme.

Duties will include:-

- Setup processes and procedures for Bradford-i training administration.
- Manage course invitations, bookings, joining instructions, training record updates, internal cross-charging (where needed), and general queries on training course attendance.
- Help setting up interviews with managers.
- Course and Trainer scheduling.
- Identify; setup and maintain training facilities.
- Book, and manage, designated training rooms.
- Ensure Training materials available per course e.g. printed Booklets, Quick Reference Guides, CDs.
- Collate end of course feedback.
- Control the latest versions of Training Course catalogue and training course materials, and ensure others who provide the updated materials are prompted and followed-up.
- Provide management reports on Bradford-i training status e.g. attendance, trainer and training feedback evaluation, 'no-shows'.

Technical

- Have a basic understanding and experience of Training.
- Have demonstrable organisational, administrative and time management skills.
- Have capability around the use of MS Office software.
- Strong written and interpersonal communication skills.

Person

- PC literate and competent on work and spreadsheet or database packages e.g. MS Word and Excel.
- Strong attention to detail and high quality standards.
- Good organisational skills and strong multi-tasker and team-player.
- Shows flexibility in order to meet deadlines.
- Willing to learn new IT applications in order to fulfill role.
- Council knowledge useful, but not essential.
- Confident to chase-up delegates and Managers re: course invitations, no-shows.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding staff selection, Joanne Gott, the Accountancy Manager made thye following comment **"The basis by which key management team members were selected was a mix, some were hand picked because they were… The head of payroll was obviously picked to be involved in the development of the payroll system. Somebody senior within finance, likewise the teams were built up through an internal recruitment process given the knowledge of all the processes, it was expected. There were some external agents procured, there weren't many… In regards to external appointments, there weren't many, about 2%, the majority were internal appointments. The internal appointments were on a skills basis. Media management skills, or change management skills"**. In addition, Joanne Gott commented **"Some were hand picked, but some were recruited. It was an open recruitment for some and some were hand picked. The diversity of the teams, the beauty of having a recruitment process is that we got a good mix of people from different services which brought different strengths"**.

This CSF was deemed to be accepted as specialist skills were emphasised along with a preference for internal members of staff. Selective recruitment practice appears to have played an important role in staff selection procedure.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that selecting staff with specific skills is critical. However, there was a divergence of opinion among the suppliers, with only three of the seven consultants agreeing this was critical. Some consultants do advocate a skill selection criteria, Wes Simmons for instance was adamant that **"you need the brightest and the best, not the guys who are spare"**, commenting that **"we generally go along and say, 'look we are going to need somebody with this skill set who understands this part of your business', and if we don't get that, we will go back to them and say, look we are not getting this"**. Simon Hulse also advocates a skill selection criteria saying **"Yes, it really helps us when the Client project team are highly skilled"**, further stating that **"we have a project manager for each major internal application"**. In addition, Ian Farrar also advocates this approach, suggesting that **"at the extreme level we can do psychometric testing. i.e. you have people on the board overseeing the implementation who can ensure a smooth transition"**. In contrast, some consultants did not do advocate a skill selection criteria. Neil Rushby makes the point that **"typically the customer selects their own project team"**, although conceding that **"We do request a small resume of everybody in the project team just as a review and if**

there are any potential issues with people on that team we would then flag it". Hamid Aghassi makes the point that it is mainly about understanding the resources you have, saying **"we specify 'this is the type of person we need in a project like this', sometimes we get them, sometimes we don't"**, making the point that **"If you are entering into a project without knowing what your resources are and what you need to do and what calibre they are, well guess what, you'll fail"**. Stephanie Snaith expands on this point, saying **"You don't always have a choice of who you work with"**, explaining that **"It is just sometimes they will need more hand holding"** and outlining that **"we do a lot of mentoring"**. Dominic Rea points out that there is often a lack of experience, and suggests that it is about compensation for that lack of experience, saying **"let's face it a lot of clients have people who haven't implemented before"**, pointing out also that **"somebody's job role doesn't necessarily mean they have skills"** and as such **"setting job specification, could become an academic process that is irrelevant to the reality"**, infact **"Some finance directors for example are very narrow minded and they only see what is good for the finance department... often they only see what is good for them and they take a very narrow view, even though the finance director should be looking at the bigger picture, sometimes they take a small view. Often it is the other way round. It depends how good the finance director is and what their background is. If there a management accountant for example they often understand the needs of the business and the need for reporting and information across the whole management team. If they are a traditional bean counter, sometimes they don't. It all depends upon what their particular agenda is and if the agenda is to grow the business, then of course they will wear the big hat. But I am just illustrating, don't assume from the job title that they will see the big picture"**. Dominic concludes by suggesting that **"the guidance you are giving them compensates for their lack of skills"**.

SUMMARY OF POTENTIAL CSF

Table 71: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	3 Accepted 4 Rejected	3
	Total	4

Appendix 23: CSF 23: Cross functional representation

CSF: Internal members were seconded from selected from key departments to ensure a full representation.

CSF Keyword: Cross functional representation.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The project team comprised of a diverse range of highly skilled professionals, with expertise in all areas of the organisation.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Cross functional representation

Table 72: A Snapshot of Personnel Involved in the Implementation

NAME	TITLE	FUNCTION
Keith Hayes	Bradford ERP Lead	Senior Management
Alan Thurlow	IBM ERP Lead	Senior Management
Paul Leese	Lead Bradford-i Programme Change Manager	Senior Management
Linda George	Bradford Bradford-I Programme Training Manager	Training
Rickey-Dean Wasson	IBM Bradford-I Programme Training Manager	Training
Max Hudson	Deputy Project manager	Business
Sindre Skaret	IBM Bradford-I Programme Training Manager	Training
Juliette Moncur	Bradford ERP Change Management Lead	Change Management
Lucie Butterworth	IBM ERP Change Management Lead	Change Management
Susan Spink	Program Change Manager	Change Management
Jagdev Singh	Technical Manager	IT
Christine Smith	Technical Manager	IT
Joanne Gott	Accountancy Manager	Accounts
Victoria Myers	Change Management Officer	HR

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

According to Joanne Gott, the Accountancy Manager **"Cross representation was important. The areas we were weak on were where we didn't have a good representation. I think that's a fair reflection… We had a couple of areas which weren't represented. These were the ones which caused the problems"**. Susan Spink, the Program Change Manager commented **"You need a total mix of experts from each area"**.

This CSF was deemed to be accepted as key members of the implementation team strongly eluded to its importance.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that cross functional representation is critical, which is a view upheld by all but one of the seven vendors interviewed. Dominic Rea surmised this point by saying **"It is suicidal to do otherwise"**, whilst Stephanie Snaith further commented that **"if we are involved in the selection it is the very first thing that we do"**. Simon Hulse suggests that willing participants are perhaps better, saying **"We always request that there is at least one if not normally two people from each department"**, describing a final solution being as, **"if someone doesn't put their hand up we don't continue without their [a departmental representative] engagement"**. Hamid Aghassi explains the reasoning for this, saying **"I would insist in getting cross functional representation as a minimum along with a number of people who know what each function or department is doing"**, outlining that **"You could re design a process and all of a sudden find out that you are not in line with some regulation, or legal requirement"**. Ian Farrar makes the point that having a cross functional understanding is critical, saying **"you would need two or three people from across the business, it is critical that they know how the business is ran"**, whilst Wes Simmons suggests that articulation is critical also, saying **"No, it is critical [to have cross functional representation]"**, explaining that **"You need the people who understand"** describing the worst situation whereby **"When your stood in front of them and they're doing a fish impersonation, then you get a fair idea they don't have a clue about what you are talking about"**. In contrast, Neil Rushby believes that it is not critical to have cross functional representation, saying **"I would say that it is important but I would not say that it is critical. I think the job of the consultant can bring all of that together [assimilation of functional requirements]"**.

SUMMARY OF POTENTIAL CSF

Table 73: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	6 Accepted 1 Rejected	6
	Total	7

Appendix 24: CSF 24: Team bonding

CSF: The project team developed good internal relations throughout the organisation.

CSF Keyword: Team bonding.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

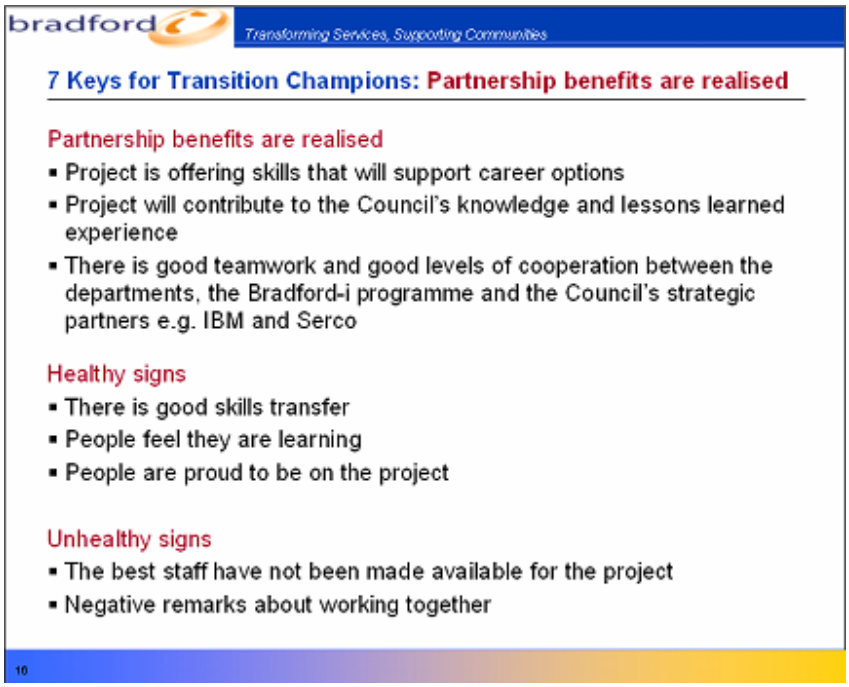
The project team developed good internal relations throughout the organisation due to ***regular social outings*** and through their own merit by having approachable personalities. This was essential as Bradford-i was the sole means of directing communications of the implementation through the organisation. Regular meeting and reporting systems were set in place so that all staff knew of up and coming commitments.

Partnership benefits were acknowledged and these were realised where possible. Teamwork and cooperation between departments was encouraged by the Bradford-i team. People selected for the project team were those that were "proud to be on the project".

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford Team bonding

Figure 41: Partnership Benefits Realisation



Source: Internal Document Ref – 7 Keys to Success for Transition Champions (March 06)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding team bonding, Susan Spink, the Program Change Manager commented **"There were regular team meetings, but there were regular elements of simply good project management. We used for example the seven keys and highlight reports and you know staff, if they weren't at the board, they were all involved in the process of completing the weekly seven keys"**. Regarding the "seven keys" reporting mechanism used for team bonding, Susan Spink, commented **"Seven keys looks at seven critical elements of the project, coded green, amber and red according to their progress status… This was the basis for the report which went into the program board"**.

In addition Joanne Gott, the Accountancy Manager commented **"It includes risks, issues, benefits, team, re-sourcing. It is all those technical things, we used to have a really ridged structure which worked quite well"**.

This CSF was deemed to be accepted as regular Bradford-i team meetings were undertaken. In addition, the process of team bonding was formalised via the "seven keys" reporting tool in assisting to relay important findings to the board.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that team bonding was critical, however this view was universally rejected by each of the seven consultants interviewed. Many reasons have emerged for their apathy, not least a cost based view as expressed by Simon Hulse, who says **"I don't want to put words in the businesses mouth, but what I can see from their point of view is, they don't have any, they can't afford any expenditure for those said items. They can't afford any downtime in man hours"**. Ian Farrar makes the point that this would never be undertaken **"unless it is a customer who lives a significant distance away, who would spend a night in a hotel, we would probably meet them for an evening meal and of discussing the project"**. There is the prospect that this activity could backfire on the project itself, Hamid Aghassi points out that **"Projects could go too much to the softer aspects of it and miss out delivery deadlines"**, presenting an alternative solution, suggesting that **"You have got to try to get people onto the project who are driven by delivery"**, explaining that **"I am just warning against excessive, touchy feely aspects of the programme which would then become a rolling missed milestone and missed deliverables"**. There is an opportunity cost attached to team bonding, Stephanie Snaith explains that **"The bonding is important but you don't want it too bonding because you need the challenge"**, highlighting that **"If they're all singing from the same hymn sheet you are missing out a huge amount of opportunity"**. This sentiment is echoed by the views of Dominic Rea who suggests that **"If they bond too much what happens is, none of them want to break the status quo"**, outlining that in the best ERP implementations **"some small empires need to crumble, for the good of the whole**". An important final point was raised by Wes Simmons who explained that **"I have managed to get projects in where the project team members absolutely hated one another"**, making the point that **"If the steer from above is 'you will do this', then they will overcome lots of things, to protect their jobs and roles"**. However conceding at the end that **"the best projects I have worked on have had them, so it's what it takes to be great, or good. It is not critical!"**.

SUMMARY OF POTENTIAL CSF

Table 74: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	0 Accepted 7 Rejected	0
	Total	1

Appendix 25: CSF 25: Top management support

CSF: The CEO Tony Reeves played an integral role and he personally signed off many key issues and was present on many PR.

CSF Keyword: Top management support.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The Chief Executive was responsible for outlining chief positions within the restructuring and stipulating their respective responsibilities. He was also put in charge of the performance committee All the information generated from the ERP system was put into management reports which were all vetted by the Chief Executive prior to distribution. The CEO personally initiated activities based on management reports generated. For Bradford Council, the CEO played an integral role, personally signing off many key issues relating to the implementation process and being present on many PR initiatives. This demonstrated ***top management support*** for the ERP implementation.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Top management support

Tony Reeves, the CEO of Bradford Council, was prominent in many aspects of the implementation.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding top management support Susan Spink, the Program Change Manager commented **"Senior management are still involved now, if you accept ESS and MSS is where it is, and finance is fully functional with a centralized finance function and look at P2P from a P2P angle. They have a compliance group that still meets on a monthly basis and the expectation from the results coming out of the statistics and that includes the national**

indicators around certain KPI, and the Chief Exec is very involved. So all senior management that includes the strategic directors and Assistant Director's. The Chief Exec, he chairs the performance committee for the information coming out, the statistics that are produced by the system to show how well people are using the system such as processing invoices within 30 days are reported back to him. He expects to see results".

This CSF was deemed to be accepted as the Chief Executive chaired the performance committee and senior management still provide valuable support.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that top management support was critical, four of the seven consultants agreed with this. Neil Rushby for example says **"it is critical to have a senior manager involved in the project. So this is typically MDs or FDs, that sort of level"**, whilst Dominic Rea also said **"yes, it is crucial"**, making the point that **"without it the project resource support needed won't happen"**, pointing out that the most important resource is human resource, saying **"you need the support of the CEO to ensure that people aren't brought off the project"**. Stephanie Snaith makes the point that top management support is critical because **"you need to have quick decisions, you can't have conflict within a solution. You need to have quick decisive decision making"**, whilst Hamid Aghassi suggests that **"when it is going live I would expect him to be there and at least four or five months before go live I would expect him to be there a couple of days a week"**, making the point that **"He would do the communications to the existing organisation and the customers"**. In addition to the positive re-enforcement, it is critical to have senior management involvement because, as Simon Hulse points out **"if he doesn't get what he wants, or she doesn't get what she wants, we have failed"**, outlining that **"The information flow is usually one way and that is top down"**. In contrast, there is a train of thought that does not advocate top management support, in so much that, as Ian Farrar points out **"It is quite a generalisation, but MDs CEOs tend to be non detailed guys, they want to know the top level information. They don't want to get involved with the detail, they leave that to the other board members or management team"**, pointing out that **"once we win the work, and the project starts, his involvement is minimum".** However, Wes Simmons points out that **"Some CEOs have a very strange view of how their business works, I would say wrong"**, explaining that **"they get involved in the project and sort of say, well that's ridiculous, why do we do it like that, when we could**

be much more efficient and they start to cut really big corner off and the people involved are going, 'no, no the devil is in the detail' ".

SUMMARY OF POTENTIAL CSF

Table 75: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	4 Accepted 3 Rejected	4
	Total	5

Appendix 26: CSF 26: Radical organisational restructuring

CSF: Bradford Council adopted a new top management layout that affected many of the service areas

CSF Keyword: Radical organisational restructuring.

CSF EVALUATION

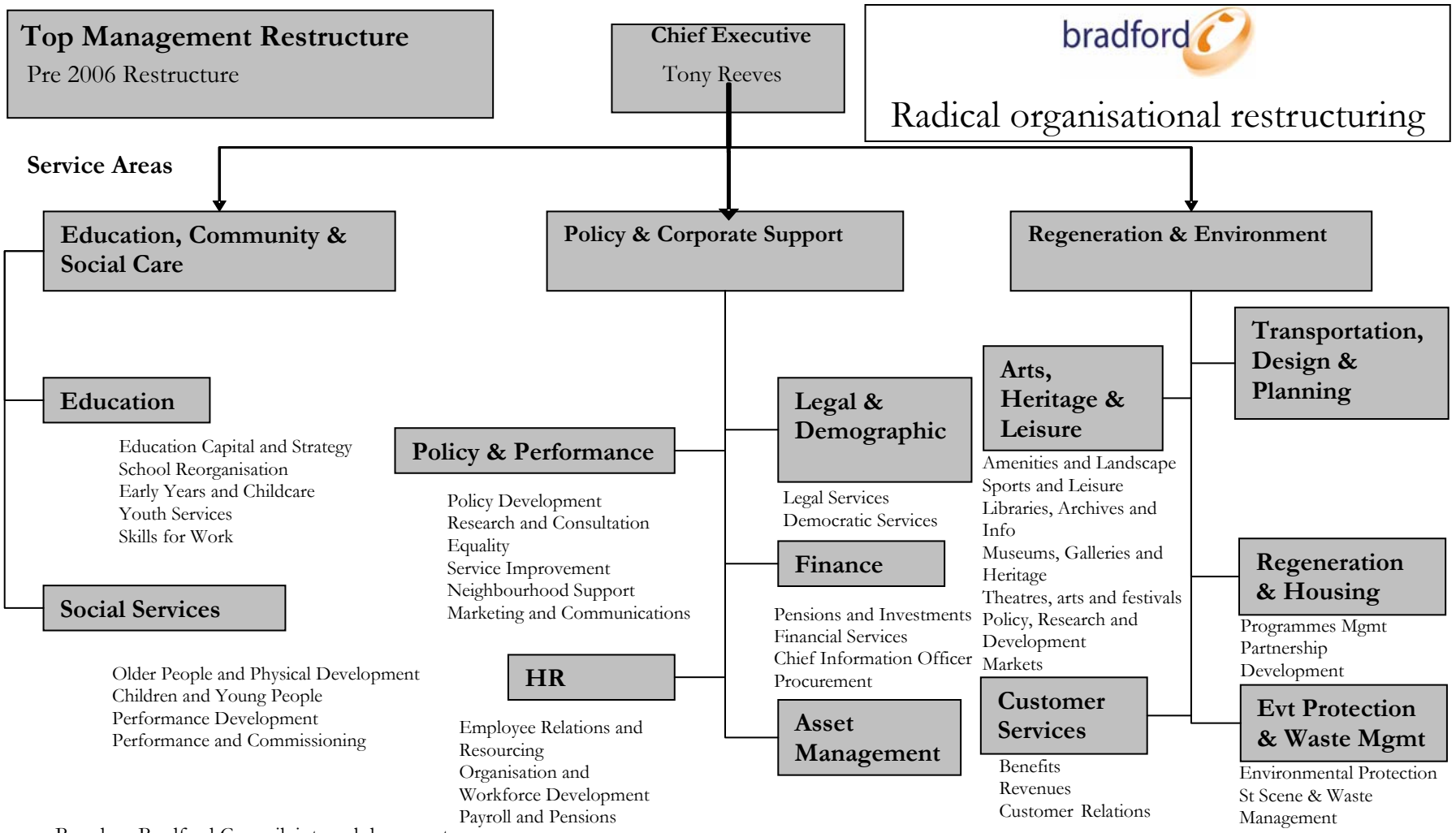
This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

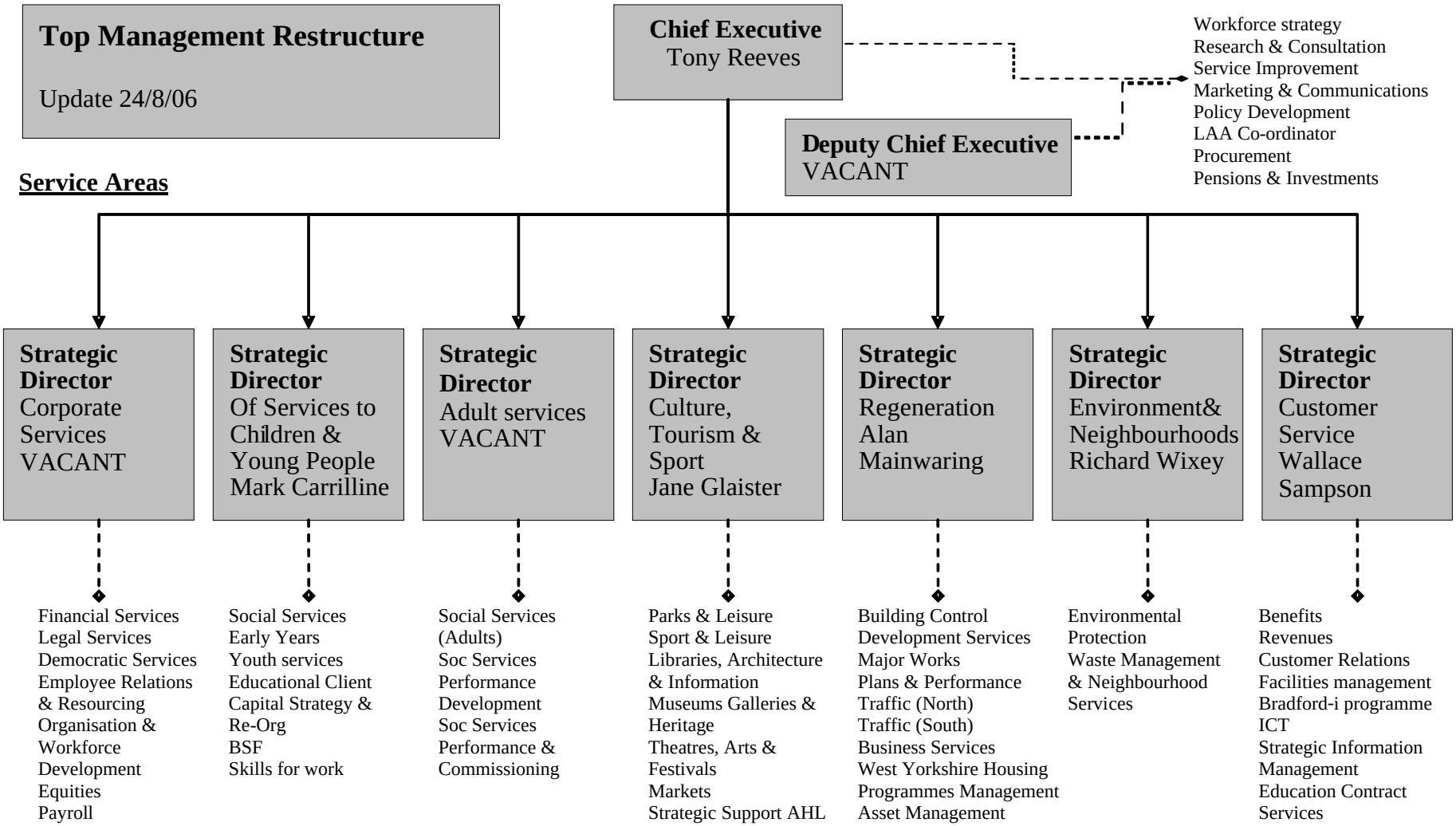
A radical organisational restructuring occurred within Bradford Council in 2006, which resulted in a new top management layout and ***changed many of the management structures*** to pre existing service areas. In total the new organisational structure was more streamlined and contained seven strategic directors: Services to children & young people, adult services, culture, tourism & sport, regeneration, environment & neighbourhoods and customer service. Each of the strategic directors reported directly to the chief executive (Tony Reeves) or deputy chief executive. During the implementation, three key of the nine key top management positions were vacant, these were the deputy chief executive, director of adult services and director of customer services. The organisation took on a flatter, more streamlined organisational structure.

Figure 42: Top Management Restructure Pre Implementation



Source: Based on Bradford Council, internal document.

Figure 43: Top Management Restructure Post Implementation



Source: Based on Bradford Council, internal document.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding organisational restructuring, Joanne Gott, the Accountancy Manager commented **"The recommendation was that we had some crucial changes to the organisational structure, however there wasn't the appetite at the time to do an organizational restructure. But those are actually filtering through, the structures are changing to reflect the new working processes. The ERP system was implemented quicker than the organization could get there"**. Susan Spink, the Program Change Manager commented **"We are getting there, it is not finished, the move of accounts payable into procurement. It is happening, it has been agreed, I don't know physically whether it has taken place yet"**. In addition, Jagdev Singh, the Technical Manager commented **"There is some discussion around the details"**.

This CSF was deemed to be accepted as key members of the project team agreed that this played a crucial role in the success of the implementation.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that Radical organisational restructuring was critical, which was a view supported by only three of the seven consultants. Hamid Aghassi said **"do you need to change an organisation following an ERP implementation, the answer to the question is yes"**. Ian Farrar proposes one solution, saying **"We have worked with ISO consultants in the past to align our processes with their processes. The client would bring ISO in, we would meet with the ISO representative, and together align our processes to meet their processes"**. Neil Rushby reiterates it is critical, saying **"They [the senior management] tend to take on additional responsibilities, taking account of the system. I think it is critical that people do take on new roles because you are restructuring processes"**. However, for the same reason Simon Hulse believes it is not critical, saying this is **"the exact reverse of what you are trying to get at"**, outlining that **"the system being introduced empowers the managers even more, rather than restructuring them into a different role, they are probably finding that it strengthens their role"**. In addition, Stephanie Snaith believes that **"most organisations don't have the ability to change top management structure"**, saying that when there is change **"it is not often radical, it is more subtly that..."**, whilst Dominic Rea makes the point that **"It is not the top management that will change, it will be the composition of the people below them"**. Wes Simmons summarised this argument by saying **"I wouldn't say that radical organisational restructuring is critical"**, explaining that **"it is a bit like asking turkeys to**

vote for Christmas. I mean sometimes there is a case for it, but generally businesses shy away from it".

SUMMARY OF POTENTIAL CSF

Table 76: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	3 Accepted 4 Rejected	3
	Total	4

Appendix 27: CSF 27: Find CRM specific expertise

CSF: Bradford Council aligned with stakeholders that could add value.

CSF Keyword: Find CRM specific expertise.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In selecting the software provider Bradford Council ***chose IBM as the partnership organisation since they had vast experience of CRM related Public sector implementations***. SAP was used as the ERP software solution as in recent years SAP and IBM formed a close working partnership. SAP is also extensively used throughout the public sector. The role of the software provider was outlined initially, this indicated the requirements of the vendor which included providing the content management model and providing the functionality aspects. It was important to choose a software provider who had public sector experience.

bradford

Vendor Selection

Figure 44: CRM specific Vendor selection

Bradford Council transforms internal processes with IBM and SAP

Overview

■ ***The Challenge***

Bradford Council, a large local authority in the north of England, wanted to present more of its services online and simplify its business processes, reducing costs and making more effective use of taxpayers' money. Existing systems were not able to support the integrated and Web-enabled future that the Council had in mind, which required a radical re-appraisal of the IT strategy.

■ ***The Solution***

The council joined forces with IBM and Serco to embark on a ten-year transformation program called Bradford-i. IBM Global Business Services helped the council to replace a range of separate legacy systems with an integrated finance, procurement and HR solution based on SAP ERP applications. IBM WebSphere Portal provides access to several applications, while IBM Tivoli software handles security. The solution runs on IBM Power Systems and BladeCenter hardware, and the infrastructure is managed 24x7 by Serco.

■ ***The Benefits***

Web-enabled secure access to core applications decreases the need for paper forms and manual data entry – reducing administrative workload and improving data quality. Integration of finance and procurement processes boosts efficiency and aids auditability and compliance. Employees can now interact directly with HR systems to perform administrative tasks. Simplified IT architecture improves flexibility and makes it easier to add new services.

■ ***Key Solution Components***

Industry: Government
Applications: SAP® ERP 5.0 including financial accounting and controlling, SAP ERP Human Capital Management, SAP Employee Self Service, SAP Manager Self Service
Hardware: IBM® Power Systems™ p5-570 servers, IBM BladeCenter®, IBM System Storage® DS6800
Software: IBM AIX®, IBM Tivoli® Access Manager for Enterprise Single Sign-on, IBM Tivoli Identity Manager, IBM Tivoli Storage Manager, IBM WebSphere® Portal, Oracle®, Microsoft® Windows®
Services: IBM Global Business Services, IBM Business Partner Serco

IBM | SAP

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding vendor selection Jagdev Singh, the Technical Manager commented **"Senior management, Keith Hayes and Paul Leese, selected our suppliers. It was also the team that was in place at the time… IBM are our partner, they subcontract the ICT to Serco. Our relationship is with IBM"**. In addition, Joanne Gott, the Accountancy Manager commented **"It was actually IBM, they subcontracted Serco. IBM are our supplier... This is realized every day, as Serco are on the ground. They use this relationship to create a little bit of difficulty for us"**.

In conclusion Jagdev Singh commented that **"They [IBM] complicate things sometimes"**.

This CSF was deemed to be accepted as, in terms of finding a Public Sector specialist, few suppliers have as good a reputation as IBM. However, sub contracted relations can cause problems.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that finding CRM specific expertise is critical, which was a view shared by five of the seven consultants. Ian Farrar explains that **"when we have a demo situation, we need to understand how the business is ran"**, expanding on this point by saying **"We need to understand their business, and obviously CRM is key to that"** and making the final point that **"CRM encompasses the whole system to be fair, everyone who uses the system uses CRM"**. Wes Simmons believes that having this expertise is critical, saying **"If I think of the projects we've done where we have been outside our expertise area, they have gone ok, but they have never gone great"**, openly admitting that **"One of the reasons I stay away from CRM is I don't understand it, so I don't go anywhere near it. I know I will be out of my depth"**. Dominic Rea expands on this, saying that **"CRM is a gateway to better customer service and it is a standard offering of ours"**, but explaining it is critical to understand all areas of their business system, saying **"our expertise in CRM is as important as something like stock control expertise"**. Hamid Aghassi believes that **"If you don't know CRM, you don't know the system"**. In contrast for the same reason Neil Rushby believes that it is not critical, saying **"we focus on CRM which is obviously one module of the overall package that we are offering, so I wouldn't say we put any more weighting on CRM than any other area"**. In addition, Simon Hulse believes it is not critical saying **"If we turn to any of our internal applications we will be able to turn to a specific user that has historically dealt with the application, and can help us drive it forward"**.

SUMMARY OF POTENTIAL CSF

Table 77: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	5 Accepted 2 Rejected	5
	Total	6

Appendix 28: CSF 28: Establish knowledge transfer systems

CSF: Inputs and activities were clearly outlined for each stakeholder.

CSF Keyword: Establish knowledge transfer systems

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

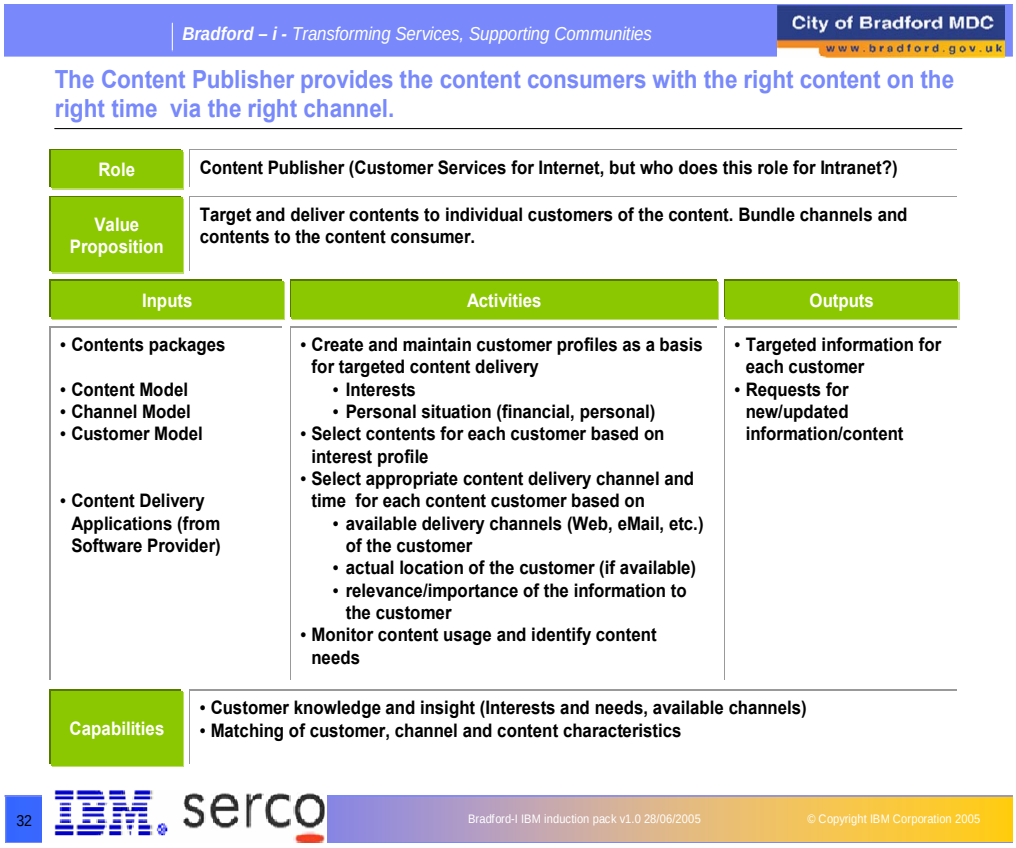
Observation leading to the formulation of the proposed CSF finding

The role of the software provider was outlined initially, this indicated the requirements of the vendor which included providing the content management model and providing the functionality aspects. It was essential that the software provider was involved in the analysis of the system and was an integrated part of the implementation team. IBM staff members were allocated office space in the same location to the Bradford-i team and access to Council resources during the implementation. Inputs and activities such as: ***training the council appointed trainers and providing key training materials were built into the contract; these formed an important part of the knowledge transfer system.***

bradford Establish knowledge transfer systems

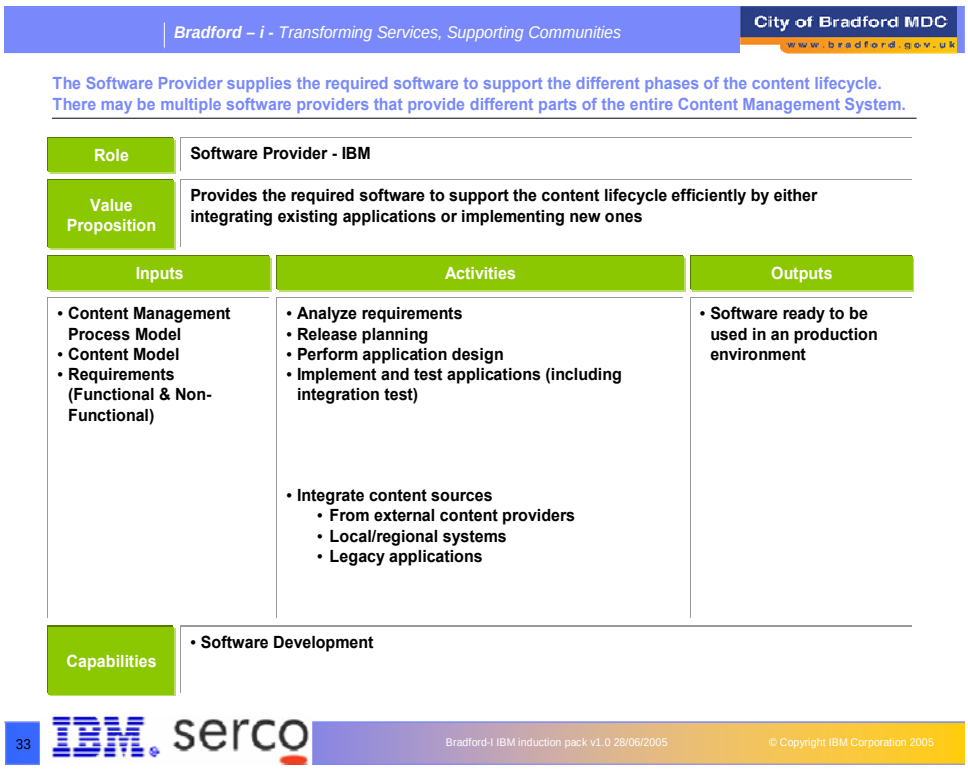
Inputs and activities were clearly outlined for each stakeholder; Content Publisher, Software Provider and Application Service Provider.

Figure 45: Identifying Inputs and Outputs 1



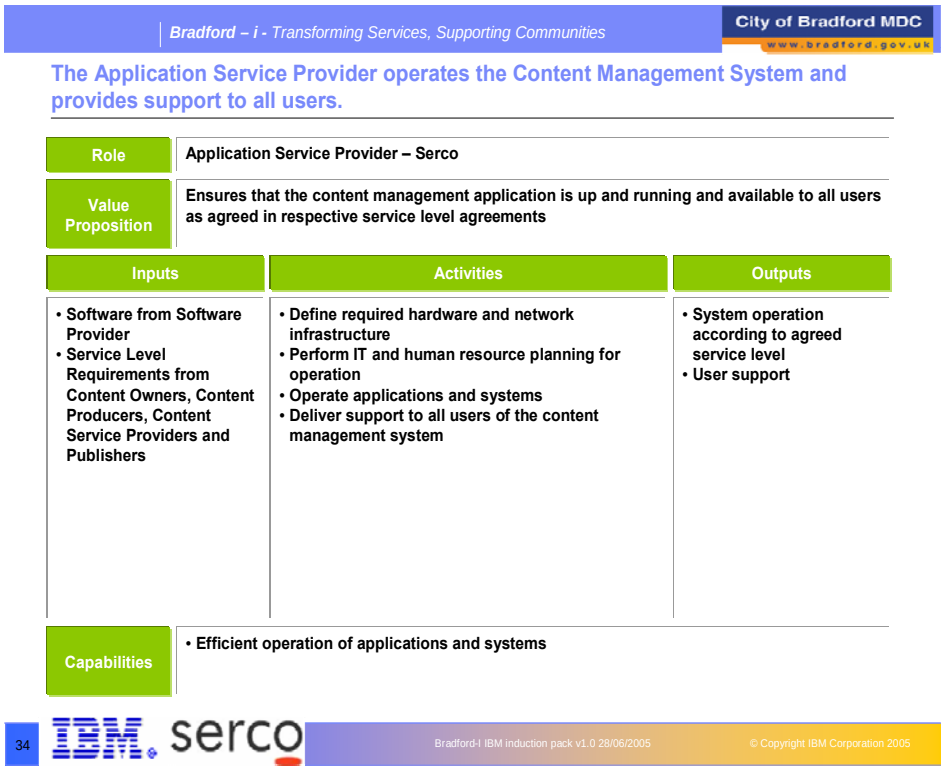
Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

Figure 46: Identifying Inputs and Outputs 2



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

Figure 48: Identifying Inputs and Outputs 3



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding knowledge transfer between the vendors and Bradford Council, Susan Spink, the Program Change Manager commented **"They weren't on their own IBM. There was more than one supplier, so that was important who ever you selected. As to why IBM was selected, it was a decision taken by Paul Leese and Keith Hayes. That wouldn't have prohibited any of the others, I wouldn't have thought"**. In addition, Susan Spink commented **"It was part of the contract"**.

This CSF was deemed to be accepted as knowledge transfer had been contractually formalised.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that establish knowledge transfer systems is critical which was a view held by all of the consultants interviewed. Hamid Aghassi describes two situations, saying this is completed **"when the supplier goes and delivers the system, and he passes that system to the client"** explaining that knowledge transfer is critical where there is **"a scenario where a supplier delivers the system but supports the system afterwards"**, explaining that this **"would be under some service level agreement"** and critical also **"if your client organisation is going to take it up"**. In the former scenario, Dominic Rea believes that knowledge transfer is critical, saying **"we have a managed service organisation which can help them from, anything from network support right through to cloud computing where we effectively take over the facilities management. So it all depends on what the customer wants"**. Ian Farrar explains that **"We can supply a Service Level Agreement"** describing that **"we'd need to supply a server"**. Simon Hulse describes that **"we have three areas of technological implementation; IS systems and IS applications and we have IS project management"**, explaining that in terms of establishing knowledge transfer it is the **"IS project management that then pulls those two plus users together"**. In regards to the latter scenario, Neil Rushby says **"I think it is critical we transfer our knowledge to the customers"**, describing that **"we do a system design document and a system confirmation of requirements saying how we envisage it all working"**, further explaining that **"it tends to be one on one with the area champions to try and ensure they pick up as much of our knowledge as they can through the implementation"**. In this situation, Wes Simmons explains that **"we would ideally like our customers to come back to us when they have tried every avenue of their expertise"**, suggesting that **"ideally we want customers to come along to us and say, they have got their own internal support network, and are coming across a new problem [that they cant resolve]"**.

SUMMARY OF POTENTIAL CSF

Table 78: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 29: CSF 29: Develop new capabilities

CSF: Rely upon the expertise of the ASP outsource 'specialist'.

CSF Keyword: Develop new capabilities

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

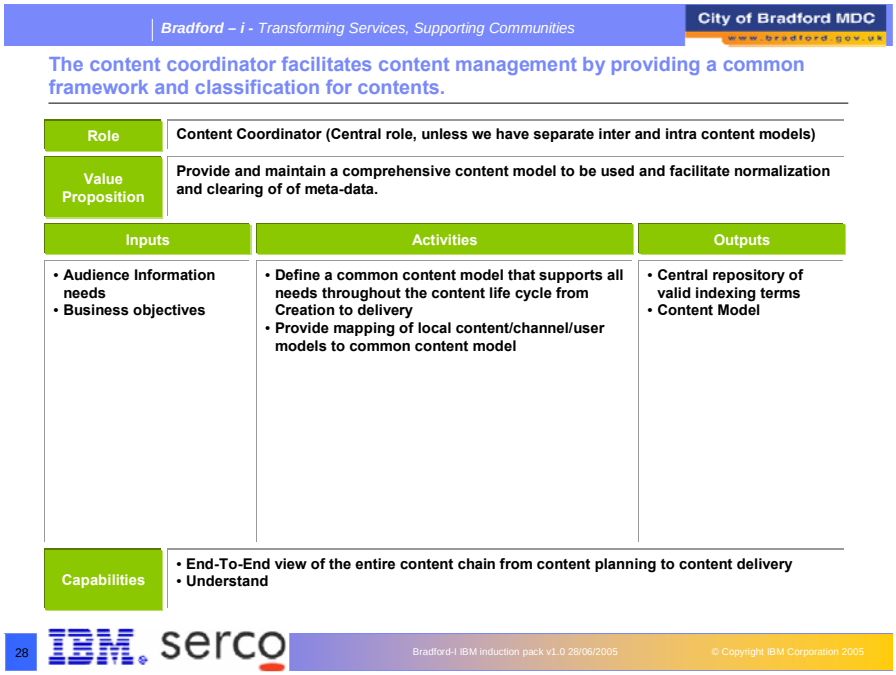
PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council appointed SERCO as their application service provider. The role of the software provider was outlined initially which was to ensure the content management application was available to all users and delivered the services of the Council through an interactive interface. The key requirements of the ASP were to provide the hardware and software necessary to undertake the actions of the system and ***provide a great deal of the expertise technical support as required*** to all users of the interactive interface system on an ongoing basis.

Rely upon the expertise of the ASP outsource 'specialist'

Figure 47: The Role of the Content Coordinator



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

Figure 48: Setting Out the System Capabilities

Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding developing new capabilities, Susan Spink, the Program Change Manager commented "**The ultimate aim was to improve the back office and therefore release support to your front end face to face delivery of services directly to customers. So it is improving back office functions so we can release those resources elsewhere"**.

In addition, Joanne Gott, the Accountancy Manager commented **"Bradford had a number of different systems, and the ERP system was aimed at bringing them all together and integrating creating end to end system which we did on time, and on schedule. However, it is fair to say that the front end processes were not fully aligned with the system which was implemented"**. Susan Spink concluded by commenting **"The payroll system was about ready to fail catastrophically and there would have been nobody to sort that out. The payroll system was not linked to the HR system, so from the point of recruiting somebody to them leaving, there was no end to end process, it was completely fragmented. So what ERP – HR, payroll brought was a completely seamless link from recruitment and the recruitment process through to somebody retiring/leaving through termination of their contract. So there was that and probably another critical one was the P2P system, was the procurement processes for the sourcing of goods and services across the organization"**.

This CSF was deemed to be accepted as developing new capabilities was a remit of the initial contract. However, supporting (improving) existing capabilities was also a key remit.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that to develop new capabilities is critical, this was a view shared by all of the consultants interviewed. Hamid Aghassi believes that **"If you have got the capabilities, and you manage the programme well, then it is better for your own staff to be trained properly to be able to run that CRM solution, in order to serve your customers"**, explaining an alternative, suggesting **"You could get organisations who are absolute experts to run a CRM solution, you know, most of the call canters are like that"**, explaining that **"as long as they understand the business enough to be able to respond to the customer, that is fine and they'll be cheaper"**. Simon Hulse explicitly said **"that would be the responsibility of my team, we are the application solutions provider"**, describing that **"we can see when an area of an application would be of benefit to users, we would then drive that forward. We would seek sponsorship from management"**. Dominic Rea also says **"it is embedded within our implementation and**

out consultancy, it is fundamental to everything we do", whilst Ian Farrar points out that **"this is case by case"**. Neil Rushby says **"I would typically class those as the SMART objectives, the things we focus on right at the outset. Something you can measure and are deliverable to the project"**, whilst Wes Simmons says **"We do work with third parties"**, explaining **"that's about using the system outside of their offices, so using hand held and all that sort of thing, with remote access, and so we don't do that, we get a third party in to do that with us"**, describing that **"I was involved in a project that actually failed for the reason that the customer wouldn't let us speak to one another"**.

SUMMARY OF POTENTIAL CSF

Table 79: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 30: CSF 30: Stakeholder collaboration

CSF: The Council ensured that key skilled personnel from critical departments were in collaboration with the ASP during the portal integration:

CSF Keyword: Stakeholder collaboration

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

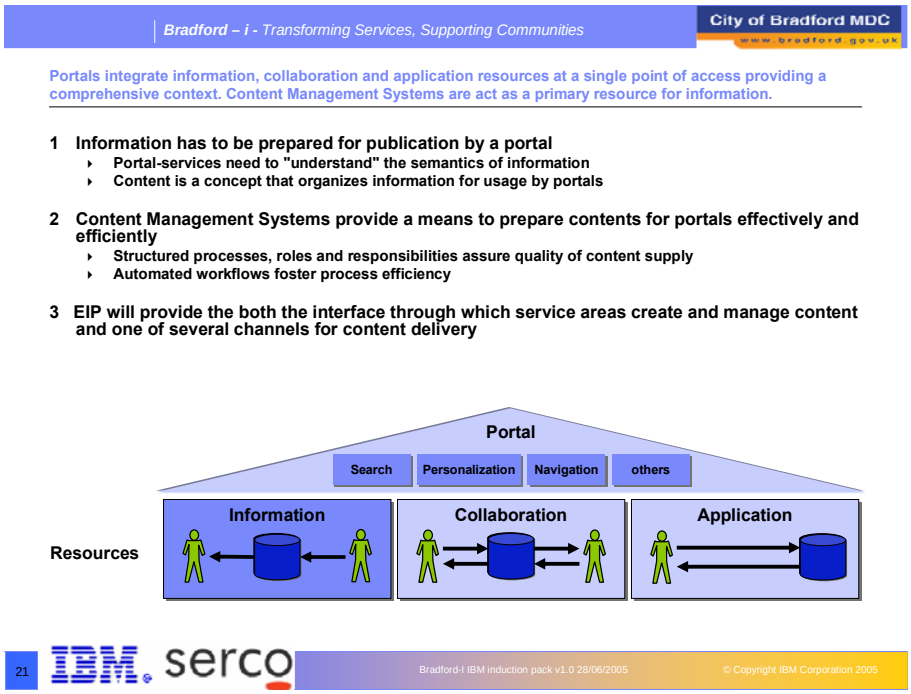
Bradford Council employed two vendors for two separate areas: (i) supplier and installation software (IBM), and (ii) integration and maintenance of the portal interface (SERCO). Each supplier was tasked to ensure that their part of the integration took into account the importance of the citizens of Bradford who would be the end-user. Stakeholder collaboration was contractually confirmed. Three key stages were outlined in the portal integration:

1. Firstly, in order to integrate the information, a detailed understanding of the service offerings was required and ***extensive work went into establishing communication between the front end personnel and the technical implementation staff of IBM***, so that both parties fully understood the tasks which were required.
2. Secondly, the collaboration between the application service provider staff and the Bradford-i project team involved regular meetings where roles and responsibilities were mapped so that automation of processes could be achieved.
3. Finally, the ASP delivered significant design and testing in an attempt to provide a fully operational and integrated interface.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

Portal Integration

Figure 49: Portal Integration



Source: IBM internal document. Internal Document Ref – Bradford-i Communications Strategy (June 2006)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding stakeholder collaboration, Whilst Jagdev Singh, the Technical Manager commented "IBM are our partner, they subcontract the ICT to Serco. Our relationship is with IBM". An interesting comment made from Linda Geord, the Head of Training was **"Our Council staff working alongside IBM on the ERP development, this is where the transfer happened, and this was passed to the trainers. That's where the knowledge transfer happened"**.

When prompted specifically about how stakeholder collaboration assisted with delivering benefits from the system Susan Spink, the Program Change Manager commented **"CRM was part of the overall project"**. In addition Susan Spink commented **"the whole contract with IBM/ Serco was about putting in a foundation, a platform, a system to enable the Council to take ICT forward"** and went on to say **"IBM are our partner, they subcontract the ICT to Serco. Our relationship is with IBM"**.

Jagdev Singh made the point that **"It was actually IBM, they subcontracted Serco. IBM are our supplier"** and went on to say **"This is realized every day, as Serco are on the ground. They use this relationship to create a little bit of difficulty for us"**. Jagdev Singh concluded by saying **"They complicate things sometimes"**.

This CSF was deemed to be accepted upon prompt, as when prompted, senior members of the project team agreed that it contributed towards the successful implementation. Bradford Council regarded IBM as their main stakeholder and eluded to the fact that SERCO was the subcontractor of IBM.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that Stakeholder collaboration was critical (upon prompt), which was in support of majority of the consultants views, with six of the seven stating that this was critical. Hamid Aghassi suggested that **"if you don't have stake holder collaborations you wont succeed"**, elaborating that **"the contract mustn't be so inflexible that you will just push the technology in and you don't look at the benefits. The way we do this is this 'one team one plan' approach. So that is the bit that will allow us to work for the benefit of the programme and the customer rather than just a supplier"**. Wes Simmons also believes stakeholder collaborations to be critical, commenting that **"Normally clients want to bind suppliers into 'You will deliver this for that amount of money, come what may, if anything goes wrong it is all your fault'. In that sort of contract, you are not going to look for value you are just going to drive for the goal"**, highlighting that the benefits are in situations **"where they have wanted us to help them get involved in doing that [collaborating] and then they have realised the benefits"**. Dominic Rea says that, **"if a contract needs to be so watertight, needs to be so unbelievably watertight, then it defeats the object"**, in this process he believes that **"the object of a contract is to facilitate an ongoing client supplier relationship"**, explaining that **"it is a bit like a referee in a football match, if the referee is so officious, that he is stopping and starting a match every minute, the whole game is lousy. That person should almost be invisible"**. In describing the practicality of this, Ian Farrar explains that **"basically the ERP system we have is modular, so when we specify the system we will identify which modules we will be implementing, as the project grows, we may find that they'd like to switch onto another module"**. Neil Rushby explains that **"We would go through a change control program"**, describing that **"I am just writing one up today from a visit I made to site last week"**, going on to say **"I have taken a project and in terms of the warehousing side of it we could do some development work to expand on that far more. But it will increase**

the cost from their side. What I am trying to do with them first of all is, rather than give them any costing information I am saying these are what I think we can deliver on, these are critical for your go live, your path going forward". Simon Hulse does not believe that this is critical, saying **"when we are contractually bound, it is unlikely that we will deviate, only is special cases where critical issues need correcting. So, I would say this is a 'go, no go' situation. In 95% of situations we will stick to the contract"**.

SUMMARY OF POTENTIAL CSF

Table 80: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted upon prompt	1
Consultant	6 Accepted 1 Rejected	6
	Total	7

Appendix 31: CSF 31: Knowledge fusion management

CSF: Knowledge fusion was undertaken, specifically by discovering information synthesis for data input.

CSF Keyword: Knowledge fusion management

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

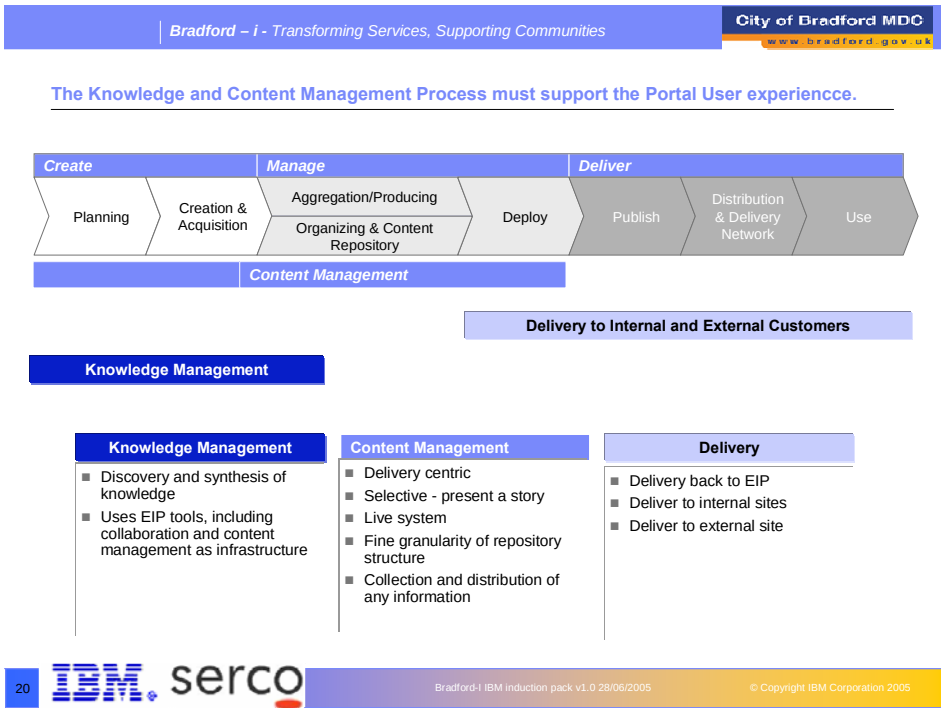
Observation leading to the formulation of the proposed CSF finding

Within Bradford Council, ***a knowledge management process was initiated which attempted to discover synthesis of knowledge sources.*** This was turned into content management on a selective basis and fed into the live system where fine granulation of this information was carefully assessed by the front end staff in the delivery stage. In order to assist in the delivery, Bradford Council invested in "humanware" (talents) consisting of super users and transition champions.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford Identifying Information Synthesis

Figure 50: Knowledge and Content Management



Source: IBM internal document. Internal Document Ref – Bradford-i Communications Strategy (June 2006)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding knowledge fusion management, Joanne Gott, the Accountancy Manager commented **"In terms of providing knowledgeable support to end-users, some elements of reporting for managers have been introduced. It's fair to say it could be better, but they have got access to sickness data, personal data of their own staff, structure, they can control absence management. ESS MSS it does have its limitations, but its got some elements that support managers to manage. In financial reporting, it is a lot better than what we had before, it is real time. There are elements that are HR, payroll and finance, and procurement still enable reporting on spend"**. Regarding processes involved in improving knowledge fusion Susan Spink, the Program Change Manager commented **"There is authorization of spend, and that can be filtered and sent wherever"**. In addition, Joanne Gott commented **"It's auditable and accountable"**. Jagdev Singh, the Technical Manager commented **"It's about how you are recording things, leagues. You can have the information other than on paper. When you can actually record it electronically it really helps"**.

In conclusion Susan Spink commented **"One of the drivers would be around improved decision making by managers, on various levels. Both of their staff planning and business planning"**.

This CSF was deemed to be accepted as a seamless flow of information supports the end-user. In addition, in terms of delivering the benefits, the process changes now offer a wide spectrum of improvements.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that Knowledge fusion management was accepted, which was a view only held by three of the seven consultants. Ian Farrar believes that not only is it critical but it is quite easy to undertake, saying **"Data migration is done every time"**, confirming that **"It is quite a simple process, and we do advocate it is completed"**, describing how **"you can change part numbers, and cleanse data, because quite often legacy systems are full of dirty data, for want of a better word"** conceding only that **"there are occasional instances where we would not recommend we migrate data, this would be over a number of years, where we would say let's take the last few years instead of the last ten years"**. Wes Simmons also believes it is critical: **"yes it is important that you do that, particularly if you are bringing historical transactional for customer information"** and makes the point that it is more difficult where it involves multiple databases, saying **"Yes, particularly if you have multiple databases, it is vital. It is very, very hard to do"** explaining that **"The biggest problem is, if you have separate databases, is data cleansing"**, going on to say **"you get the same customer or supplier described subtly differently, in three different databases"**. Hamid Aghassi confirms the point about transactional information migration being critical, saying **"if you are doing a billing system, and you have no idea what the billing history is, and the customer calls and says, that's my bill and you don't know, that is going to cause problems"**, explaining that **"If you don't migrate your information, from your legacy system on to the new system, then you'll fail"**. However, many consultants did not believe that knowledge fusion was critical, Simon Hulse for example says that what is important is that **"If a new system is coming into place you must allow methodology of how the user is to access historical data",** explaining that **"you can do that in one of two ways, you can either keep the old system alive and in read only mode or you import and go through the ETL process of loading all historic data"**. Dominic Rea also disagrees that it is critical saying **"historical data is and it is often less important than they think it is"** explaining that there is **"an awful lot of information in that system, in the old system, you never use and never will"** and makes

the point that if it is done **"it depends how stable the company is, if the company is getting new clients all the time, then you might not bring historical data in. [However,] if they want historical data because they have a fairly stable customer base, then you will bring the historical data in"**, highlighting that this is a difficult process describing that **"historical data is often incompatible with the new system works"** explaining that data segmentation is a problem, saying **"you'll often change the shape of that data and you might bring in stock codes you might bring in some historical data with only Clients going forward"**. In addition to those consultants who offer the Client with options, some actively lead them away from this, such as Neil Rushby who says **"[We] try and push the customer to not to import any legacy transactional data information"**, explaining that **"we start from a clean board and you are in a far better position I think"**, the way this is done is that **"[We] explain that we don't really want to export old data in because that tends to be Garbage in garbage out"**, but presenting an alternative as being **"If I wasn't importing data and they needed a reference point back to data, then I would encourage one pc to be available for looking at legacy information and not readily available to all staff"**.

SUMMARY OF POTENTIAL CSF

Table 81: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	3 Accepted 4 Rejected	3
	Total	4

Appendix 32: CSF 32: Customer facilitation

CSF: One-stop shop developed and maximised.

CSF Keyword: Customer facilitation.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

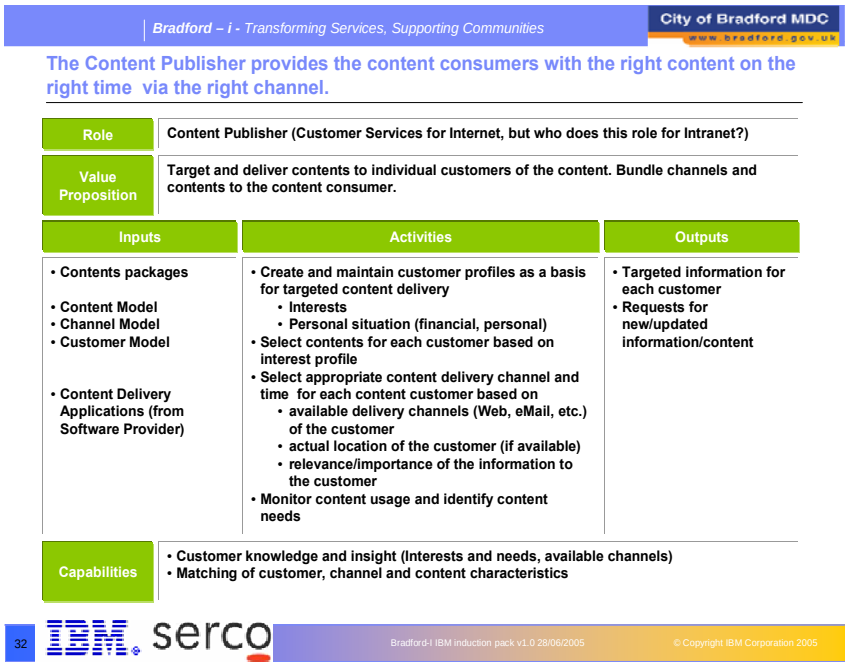
Bradford Council strived to improve customer facilitation through portal integration. Three key stages were outlined in the portal integration:

1. Firstly, in order to integrate the information, a detailed understanding of the service offerings was required and ***extensive work went into establishing communication between the front end personnel and the technical implementation staff of IBM***, so that both parties fully understood the tasks which were required.
2. Secondly, the collaboration between the application service provider staff and the Bradford-i project team involved regular meetings where roles and responsibilities were mapped so that automation of processes could be achieved.
3. Finally, the ASP delivered significant design and testing in an attempt to provide a fully operational and integrated interface. The Council's ***one-stop shop was developed and maximised based on the portal integration.*** This formed the basis of the external portal for the citizens of Bradford.

bradford

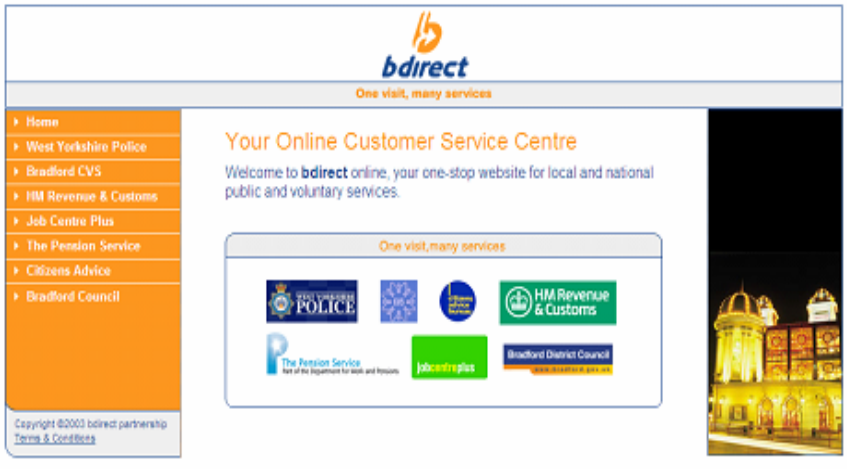
Front End Mapping

Figure 51: Mapping Customer Data Inputs



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-i IBM induction pack v1.0 28/06/2005

Figure 52: The ERP enabled Online Customer Services Centre



Source: bdirect website (2010)

Joined up services provided to Bradford Citizens for; West Yorkshire Police, Bradford CVS, HM Revenue & Customs, Job Centre Plus, The Pension Service, Citizens Advice and Bradford Council.

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding customer facilitation and portal integration Susan Spink, the Program Change Manager commented **"It helps people on the front line, its not ERP that helps them it is the integration of CRM that helps them, the feeding of calls through the contact centre, it is the integration of Environmental health, with planning, all those things that are now all made possible by the technology we have got in place but it is not ERP on its own"**.

Susan Spink made the point that **"None of it would have been possible without the platform being put in place which was the whole purpose and the whole driver for the original contract. Everything else was important and integral, systems which needed to be in place to start releasing the benefits, you know releasing staff onto the front line… ERP isn't anything to do with them [the citizens]. The platform the whole thing sits on, which CRM is part of, with various other integrations, enable better services to citizens of the district. But the role in which Serco play in supporting ICT, is the platform that then enables the CRM"**.

In conclusion Susan Spink commented **"the Customer Relationship Management system was put in as part of the overall Bradford-i program and so that brought in the links, you know, it joined up the contact centre, the one-stop shop, there's still some ongoing works to link into the revenues and benefits system through the CRM system, that's sat there waiting to happen"**. Joanne Gott, the Accountancy Manager commented **"Another thing, there are some initiatives that have actually opened up and supported the community into introducing local spending, things like that. In terms of Council spending, our procurement services to local suppliers and things like that, ensure that its District led"**.

This CSF was deemed to be accepted as, in terms of improving services to the citizens of Bradford, the front line improvements have made a real difference, for example the one-stop shop. It is important to note that ERP is the essential platform on which the CRM based benefits needed to be built upon.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that customer facilitation was critical, which was a view held by each of the consultants interviewed. One point raised was by Dominic Rea, who said **"bear in mind that it is very unlikely we would have won a contract without proving that we**

understood this. The clever customer will ensure that the vendor understand this before they buy from that customer". Simon Hulse said **"I think that is actually key"**, explaining that **"we rely on customer satisfaction and because we rely on customer satisfaction, we rely on the users who interact with the customers"** going on to say **"If our customers' customers are not happy, that to be quite honest will override every other issue with the system and that will be addressed first"**. Ian Farrar described that **"an example would be on our system we could have a customer portal where their customers could go on and see the status of their orders"**. Hamid Aghassi said **"I think this is very important… We make sure that when the system goes live that the customer service agent doesn't have to say we have put a new system in because as far as the Client is concerned, that is irrelevant"**, going on to make the point that **"If you really want to do that [integrate Customer facilitation] you have to go and interview every single customer that your customer has got and say what is it that you really want?, and that doesn't happen. What happens is we interview and work with account managers who manage those accounts. So we trust the internal organisation"**. Neil Rushby reaffirms this point saying **"We don't speak to their customers, we go on a scoping stroke mapping exercise, we speak with each department, and understand what information comes in and what information goes out"**, which again is reiterated by Wes Simmons who says **"we tend to rely on the people who are at the sharp end of the customer's business. It tends to be, in what we do, it tends to be more about the level of flexibility you need"** explaining that it is the **"customers' demands of the information they require is the key thing that we find, so it is critical. What you'll find is that if you don't do that, you'll end up with a system whereby you have got the information but it is so well hidden in the system, that you can't get it out in a timely manner"**. On this point Stephanie Snaith outlines that **"It depends upon the nature of the business. It depends whether you sell to business or consumers, B2B more probably, B2C less so"**.

SUMMARY OF POTENTIAL CSF

Table 82: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted outright	1
Consultant	7 Accepted 0 Rejected	7
	Total	8

Appendix 33: CSF 33: Content mapping appraisals

CSF: The content model was mapped specifically with end-user involvement.

CSF Keyword: Content mapping appraisals

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

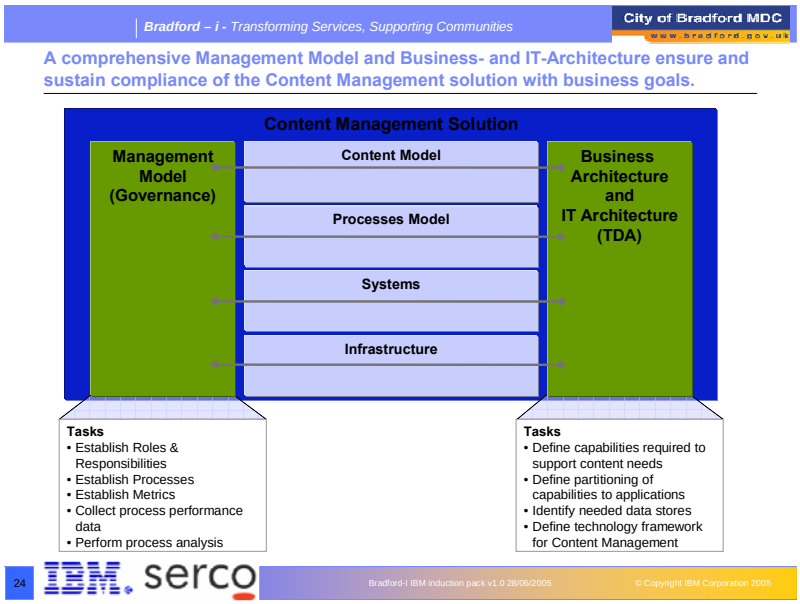
PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

Bradford Council thoroughly ***mapped the services they were providing to their customers***. These individual areas include, Social Services, Development Services, Business Services etc. The initial step was the content model creation, whereby content sourcing was undertaken. Subsequently classification of data types was undertaken along with taxonomy and delivery method assessments. This led onto the process model which was led primarily by the policies of the steering committees and was changed in accordance with 3rd party observations for final signing off. The content and process models were aligned within the system to ensure the applications ran effectively. Once this was achieved, the content management mapping was concluded by an infra-structure mapping phase which was integrated by aligning processes and roles.

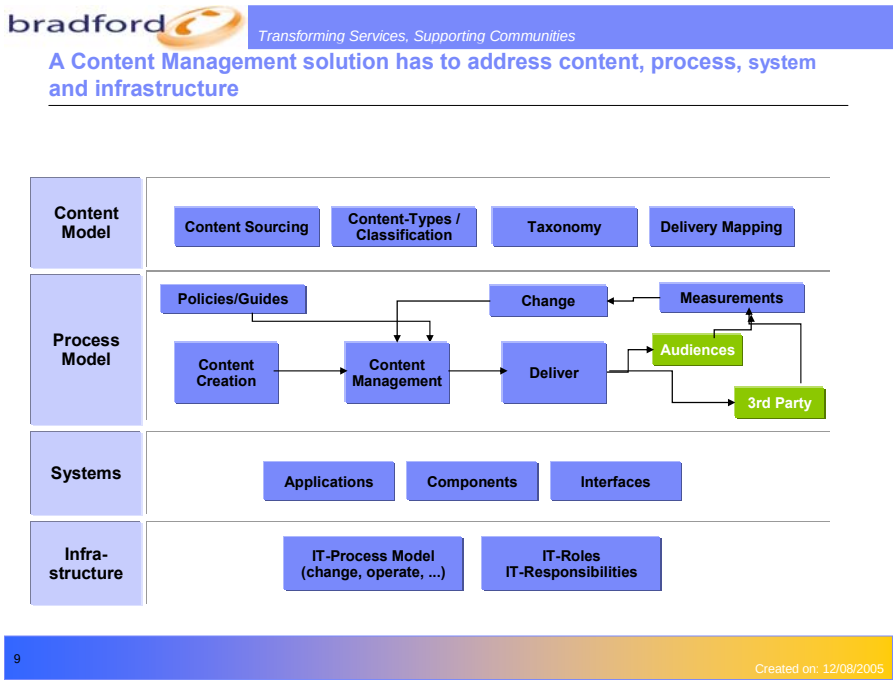
bradford Content Management Mapped

Figure 53: Content Management Solution



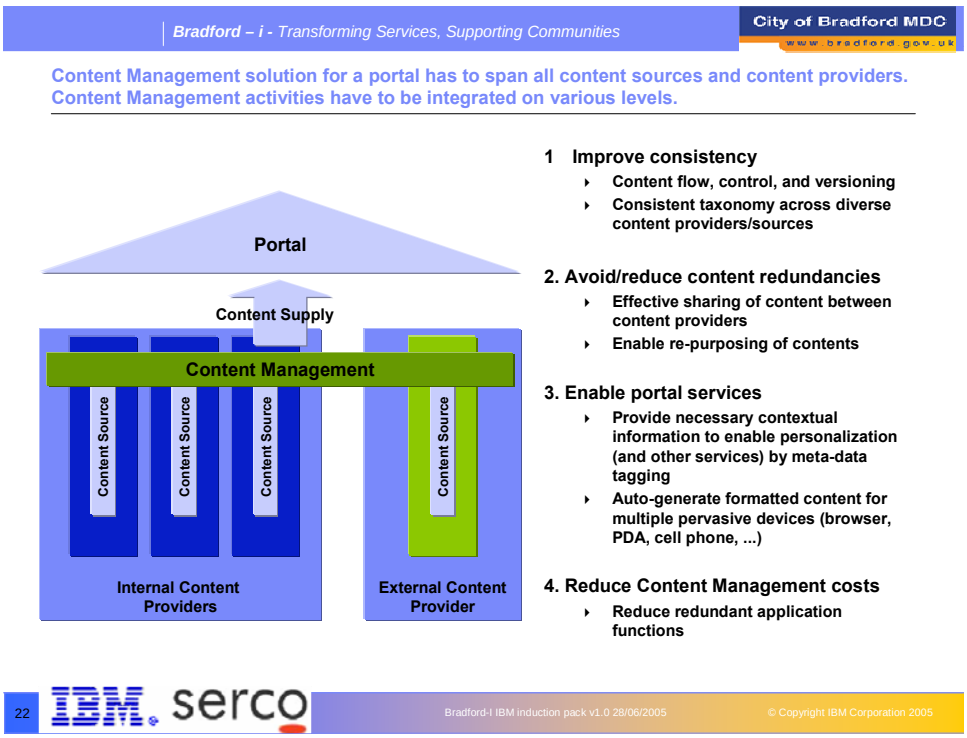
Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

Figure 54: Infrastructure Mapping



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-I IBM induction pack v1.0 28/06/2005

Figure 55: Knowledge and Content Management Mapping



Source: IBM Corporation internal document. EIP Roadmap – with Knowledge and Content Management. Bradford-i IBM induction pack v1.0 28/06/2005

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding content mapping influence of BR, Susan Spink, the Program Change Manager commented **"These ran on the back of ERP, though there were elements already in, in its basic format. There were elements of the CRM system already in. Working with the contact centre and other specialist areas which have now integrated into the contact centre. So that people ringing for example Environmental health come straight through to the contact centre, this might have been already in. But it's enabled improvements"**. Susan Spink also commented that **"It was Lagan and Flair [the CRM software system]. Through deployment of the 'Lagan Self Service' option"**. Joanne Gott, the Accountancy Manager commented **"Lagan is the CRM system. The customer contact. Flair is the environmental services system"**, Joanne Gott also commented **"Again SAP wasn't configured for our CRM systems, it's like a third CRM system"**. In conclusion Joanne Gott commented **"Whilst the ERP system was configured for CRM, it was not content mapped against existing systems, being described as the organisation's third CRM system"**.

This CSF was deemed to be accepted upon prompt, as a when prompted, content mapping proved to add value during the implementation. A software tool was used to assist with the achievement of the content mapping.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that content mapping appraisals was suggested to be critical (upon prompt), which was a view held by only three of the seven consultants interviewed. Hamid Aghassi believes it is critical, saying **"Well you have got to put business measure in, yes"** explaining that **"your change programme should have an objective"** describing that **"They should be saying look, when a customer called, how long did it take, for you to satisfy that call? And before if it was ten seconds, or tem minutes or whatever it was, has that improved"**. Neil Rushby goes on to say **"That's one of the things we push for at the initiation meeting [KPI's], some of the more obvious ones that are actually stock holdings, order process time reduction, stock holding in terms of days and then it comes down to analysis"**, whilst Ian Farrar agrees saying **"Yes, we basically replicate what ever they have now and more. So, if a customer says we have five key reports we need to run, we would write those reports for them"**. In contrast, several consultants did not believe that content mapping was critical, Simon Hulse for example said **"The short answer is no, we don't do that"**, but concedes that **"It is probably one of the most relevant questions, because you want to determine if your project has succeeded or failed"**, explaining that the reason they don't do it is because **"The trouble that you have identified, is, as you have said, you are not comparing apples with apples. You are comparing apples with oranges"**. Stephanie Snaith makes the point that **"The two areas I can think that fit with this, one is parallel running, which is putting the same transactions through, and having a cut over period where you use your old system and your new system. I would strongly advocate against that because you end up proving your old system is wrong, nine times out of ten"**, making a concluding statement **"You don't parallel run it is a waste of time, you have to move on. The king is dead! Long live the king!"**. Dominic Rea also believes this is not critical, relating this to the Public sector, saying **"The Public sector approach generally was 'let's keep the same, because this is how we like to work'. So we would bespoke to meet their current ways of working and everything was over engineered to meet user requirements, now in the Private sector, which by its nature, is far more entrepreneurial, with the bottom line being the driver for everything"** explaining that **"You have to accept that the system works and a system like ours, which is implemented in fourteen thousand sites worldwide, does add up and that we are not developing generally bespoke, we are just mapping the internal**

flexibility of the system to meet very specific processes. So you're not being so experimental that you have to parallel run, ever".

SUMMARY OF POTENTIAL CSF

Table 83: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted upon prompt	1
Consultant	3 Accepted 4 Rejected	3
	Total	4

Appendix 34: CSF 34: Establish steering groups

CSF: Five separate governing bodies, each with its own agenda were involved.

CSF Keyword: Establish steering groups.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

The case of Bradford Council

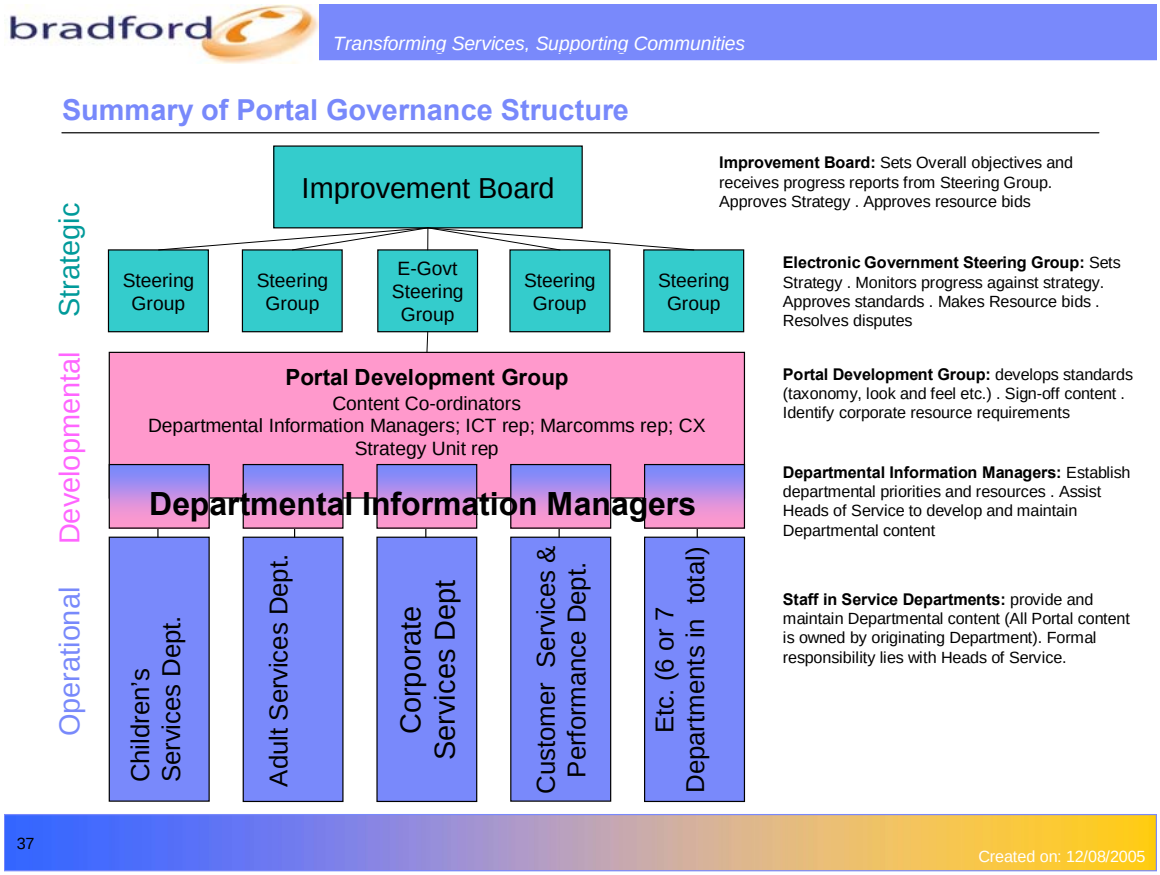
Bradford Council ***allocated five separate governance bodies*** to oversee the portal integration, each championing a different cause reflecting a different steering group. This was termed the improvement board and set the overall objectives and approved strategy from the steering groups. Under the board were the e-government steering group who ensured the project fell in lines with central government policy and ensured the project achieved the corporate objectives in accordance with this. The portal development group was under the e-government steering group and developed the look and feel of the system which related to the functionality of the system. The departmental information managers established priorities and allocated departmental resources according to needs. The staff in service departments owned the content of the system and ensured content was accurate.

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford

Portal Governance

Figure 56: Portal Governance



Source: Internal Document Ref – Content Management Process – Future Sustainability Approach (2005)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding establishing steering groups Jagdev Singh, the Technical Manager commented **"There were regular content mapping teams which checked we had got what we had actually expected"**.

In addition Jagdev Singh commented **"It was really Wallace Sampson (Customer Services Director) who was the driver of CRM initiatives, although he left the organization in the early stages of the implementation. He was the key man, as soon as he went it all just stopped. He actually left just after everything went live"**.

The Accountancy Manager, Joanne Gott commented **"During the integration, we struggled with Portal, didn't we! We ended up throwing it live with ESS and MSS and it wasn't ready. It was a problem and (Jagdev Singh) got dragged in late in on the day. ["Yes I did." (Jagdev Singh)]"**. In conclusion, Susan Spink, the Program Change Manager commented "The whole service element on the ESS and MSS should have been live, on the Portal. But the Portal should have been live first with all the other benefits that it brought. But it's the Portal that's still an internal piece to the Council's staff. It's not the external website link to the Citizens of the community. Staff driven, Staff information, Staff knowledge, Staff communications".

This CSF was deemed to be accepted upon prompt, as the steering groups delivered on the expectations. However, the resignation of the Customer Services Director, a key member of staff may have hampered efforts. This research highlights the difficulty in replacing key members in time if they leave the organisation.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that establishing steering groups was critical (upon prompt) which was a view held by four of the seven consultants interviewed. Hamid Aghassi believes this is critical, saying **"If you don't have a steering group it will go to the wall, it is like driving a car without a steering wheel"** explaining that **"the steering group for me are the people who are directing the project, so they are the CEO or the CFO, or the customer service head"**. Wes Simmons also believes steering groups to be critical, saying **"we always encourage them to do it"**, explaining that **"you have got to get a mix between the end-users view of the world and the management view, you have got to take a view of both"** describing the reason as being **"Steering groups are really important in terms of making sure that you have an escalation point for critical project issues and in knowing that you have got someone who makes sure you are staying on track, not just in terms of am I going to finish on this date, but are we getting all the benefits we need"**. Ian Farrar believes they are critical and described the people involved, saying **"It is never really a set thing, so obviously the champion, quite often a guy from IT, a guy from finance and a guy who would know the business inside out really"**, going on to describe how **"Some times the customer may hire a consultant to be part of the steering group, basically just to ensure that we are doing what we say we do"**, whilst Simon Hulse explains that **"Well our steering group would consist of those teams that I mentioned before, the IS systems, the IS applications, the project manager and the Gold star users and their management"** explaining that **"If someone leaves, then they**

are simply replaced by their day to day counterpart and it's up to them to get up to speed as quick as possible". In contrast several contractors believe this is not critical, Stephanie Snaith for example said **"I would sit on the fence with this. If they add value they are essential, if they become a talking shop, and a winging session, and don't move forward, then I would kill them very quickly"**. Dominic Rea is slightly more overse, saying **"They need to understand the danger that their waffling can produce"**, whilst Neil Rushby explains that **"We break the project down into different areas, as we go through and obviously the accounts champion looks after their own particular area to ensure their requirements are being delivered, but it is not something we particularly focus on as an organisation"**.

SUMMARY OF POTENTIAL CSF

Table 84: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted upon prompt	1
Consultant	4 Accepted 3 Rejected	4
	Total	5

Appendix 35: CSF 35: System driven CRM training

CSF: CRM training was scheduled for all communities of interest and was designed to develop business benefits, the progress was closely monitored.

CSF Keyword: System driven CRM training.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

Observation leading to the formulation of the proposed CSF finding

In an attempt to fully exploit the technically delivered benefits of the system, ***CRM training was scheduled for all staff,*** and this training was based upon a training needs assessment carried out by the training manager. This involved end user integration through system driven CRM training. The appropriate number of trainers and the training rooms were allocated and then the training was delivered.

System driven CRM training

Ensuring the correct number of Trainers and Facilities was driven by the ERP system.

Bradford-i ERP Release 1 Room & Trainer Requirements

Table 85: Training Room and Trainer Requirements

Training Room Requirements				Trainer Requirements		
Training Days	2482			Training Days	1953	
Training Rooms	10	Rooms		Training Resource	20	Trainers
No. Per group	10	Delegates		No. Per group	10	Delegates
% Full	100	%		% Full	100	%
% Redundancy A	0	%		% Redundancy B	60	%
Delivery Window	**25**	Days		Delivery Window	**25**	Days
Delivery Window	**5**	Weeks		Delivery Window	**5**	Weeks

Training Days	Number of person days training. E.g., if 50 people need 3 days training each 50x3=150.
Training Rooms	Number of rooms in the schedule.
Training Resource	Number of trainers required.
No. Per group	Number of delegates in a group.
% Full	Percentage attendance. I.e., how many confirmed attendees will show.
% Redundancy A	Scheduling redundancy to allow for downtime of a room in the schedule.
% Redundancy B	Scheduling redundancy to allow for non-training time.
Delivery Window	Working days required to deliver training.
Delivery Window	Working weeks required to deliver training.

Source: Internal Document Ref - Bradford Council **ERP Training Strategy Document ERP-R1-3-20. 10/04/2006**

Ensuring the right people attended the right courses was driven by the ERP system.

Table 86: Bradford-i ERP Release 1 Training Curriculum

Course Code	Course Name	Delivery Medium	Audience	Duration (Days)	TNA No.	Source
ERP Generic						
1050	SAP Navigation	E-Learning	ERP-All	0.25	625	Estimated Number - Mark St. Romaine
ERP Finance						
2000	Finance & Controlling Overview	E-Learning	ERP-All	0.25	625	Estimated Number - Mark St. Romaine
2100	Finance Master Data	Classroom	ERP-Finance	2	20	Estimated Number - Mark St. Romaine
2110	Finance Master Data	Classroom	ERP-Service	0.5	71	AR, FMIS & LABS User Extract
2150	Processing Journals	Classroom	ERP-Finance	1	69	AR, FMIS & LABS User Extract
2160	Processing Journals	Classroom	ERP-Service	1	625	Estimated Number - Mark St. Romaine
2200	Asset Management	Classroom	ERP-Finance	1	10	Estimated Number - Mark St. Romaine
2250	Budgeting & Forecasting	Classroom	ERP-Finance	1	69	AR, FMIS & LABS User Extract
2260	Budgeting & Forecasting	Classroom	ERP-Service	1	592	All Cost Centre Managers
2300	Accounts Receivable	Classroom	ERP-Service	1	71	AR, FMIS & LABS User Extract
2310	Accounts Receivable	Classroom	ERP-Finance	2	21	AR Team listed in Bradweb Phonebook
2450	Reporting	Classroom	ERP-Finance	1	77	Finance Team listed in Bradweb Phonebook
2460	Reporting	Classroom	ERP-Service	0.5	594	All Cost Centre Managers
2550	Banking	Classroom	ERP-Finance	1	10	Estimated Number - Mark St. Romaine
2650	Project System	Classroom	ERP-Finance	1	105	AR, FMIS & LABS User Extract
2670	Investment Management	Classroom	ERP-Finance	1	69	AR, FMIS & LABS User Extract
2700	Period End Procedures	Classroom	ERP-Finance	0.5	69	AR, FMIS & LABS User Extract
ERP Accounts Payable						
2850	Payments & Cheques	Classroom	ERP-Finance	1	5	Creditor Payments Team from Bradweb Phonebook
2900	Documents & Reporting	Classroom	ERP-Finance	1	5	Creditor Payments Team from Bradweb Phonebook

Source: Internal Document Ref - Bradford Council **ERP Training Strategy Document ERP-R1-3-20. 10/04/2006**

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding system driven CRM training, Susan Spink, the Program Change Manager commented **"In introducing technical based CRM training for end-users, the technical training was important for the staff. I mean some of the elements were very intuitive, ESS and MSS are intuitive, but it is the detailed SAP knowledge and reporting of things that we needed staff engagement in and huge amounts of knowledge transfer, probably what we didn't do as effectively as we could have done. Serco received the knowledge transfer from IBM… Ensurance and complaints was undertaken, complying for design processes"**. The Technical Manager, Jagdev Singh, commented **"Serco took over the operational maintenance side of things. But IBM implemented it"**. The Accountancy Manager, Joanne Gott, commented **"The current customer practice in a lot of service areas were very different and that was one of the difficulties in process implementation because everybody did different processes. So getting consistency, adopting the same practices across the board has been one of the benefits"**.

This CSF was deemed to be accepted upon prompt, as it was acknowledged as being important. However, the handover and long-term implementation was problematic.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that System driven CRM training was critical (upon prompt), which was a view shared by only three of the seven consultants. Hamid Aghassi for example said **"people who have not done SAP before will not be able to apply it, you can't have a training course without having what your system underneath is"** and Ian Farrar reinforced this view but conceded that **"The core users though tend to have the capacity to take onboard extra training, whereas some of the more lesser the user, for want of a better word, may just get saturated quickly"**. Simon Hulse however does not believe this is critical, saying **"That is our super users responsibility"** and explaining further that **"we do it post implementation, so either the customer, the end customer would talk if there is an issue"** going on to say **"the fall out from that would be a one on one or another training session that would be fed back depending on the scenario, fed back to the department, if it was considered that we had under trained in a certain area"**. Neil Rushby also believes it is not critical explaining that **"We do however, try and explain to people at the start, rather than a reduction in their workload, doesn't mean redundancies"** explaining that **"So maybe we will remove tasks in one area and add them in another, so it might involve a redeployment from there"** providing an example,

saying **"a site I went to the other week, there was a change in his role, but, it has been put forward to him exactly what his role will be, so he is not worried about loosing his job or anything, but he is a key player, and will be when it is finished, it is just that his job role will be finished"**. Dominic Rea relates this to the current research setting, making the point that **"I suspect that CRM is a new method within Public sector, a way of incorporating a customer focus"**, explaining that **"it is old hat for our industry"** going on to say **"the Public sector catching up"**.

SUMMARY OF POTENTIAL CSF

Table 87: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Accepted upon prompt	1
Consultant	3 Accepted 4 Rejected	3
	Total	4

Appendix 36: CSF 36: Assigning new responsibilities

CSF: Job roles and staff skills were thoroughly mapped, which helped managers to assign individual responsibilities.

CSF Keyword: Assigning new responsibilities.

CSF EVALUATION

This appendix contains details relating to; project team placement observations, observational support documentation, project team management interviews and consultant interviews.

PROJECT ONE - PROJECT TEAM PLACEMENT OBSERVATIONS

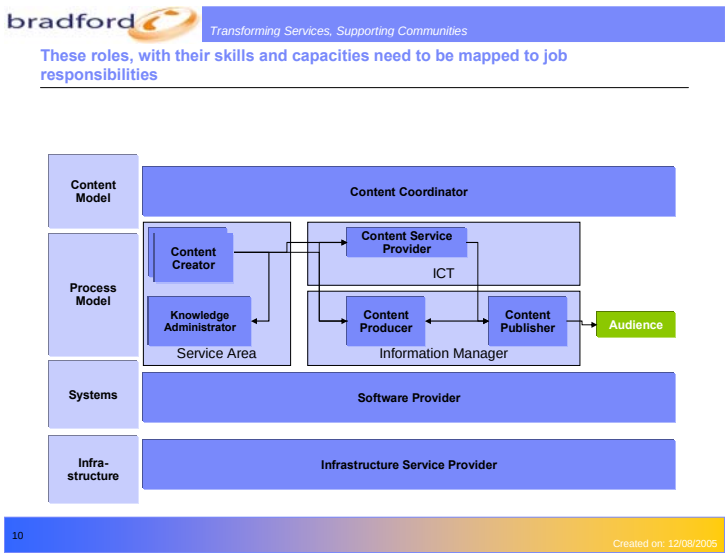
Observation leading to the formulation of the proposed CSF finding

Within Bradford Council the Roles, Skills and Capabilities were mapped. The process changes were undertaken by the departmental information managers, who obtained their information from the system facilitators. ***Knowledge workers (administrators) were given the task of relaying their job descriptions to the content service providers who mapped new roles to existing staff members.***

PROJECT ONE - OBSERVATIONAL SUPPORT DOCCUMENTATION

bradford Roles, Skills and Capabilities Mapped

Figure 57: Roles Skills and Capabilities Mapped



Source: IBM internal document. Internal Document Ref – Bradford-i Communications Strategy (June 2006)

PROJECT TWO - PROJECT TEAM MANAGEMENT INTERVIEWS

Regarding mapping roles, skills and capabilities, Joanne Gott, the Accountancy Manager commented **"That was something that again the Council didn't understand as well as it could have done. The role mapping that was given for each of the tasks, because of the diversity of the Council, and the different services, it was difficult to pitch into the right process. People's job roles were not aligned with the system processes"**. Susan Spink, the Program Change Manager commented **"Then again, large problems have been manifested by the self reach managers [managers who's role is to job map] taking place subsequently to it [the ERP interface] going in. Locally, managers have more awareness of the skill sets needed by the staff that play an important role in delivering the ERP system"**. In addition, Jagdev Singh, the Technical Manager commented **"They'll [the staff] get through, based on what they need to do"**.

Assigning new responsibilities was deemed to be rejected on account that the complexity of this task ultimately was beyond the practical reality of delivering benefits this way, i.e. the system was implemented before the reach managers had role mapped. In addition, it seems that potential problems this could have caused could have outweighed the potential benefits.

PROJECT THREE - CONSULTANT INTERVIEWS

The case study highlighted that assigning new responsibilities was not critical, which was a view opposed by all of the consultants interviewed. Hamid Aghassi said **"Of course if you have got a new system, the new roles and new responsibilities must be assigned otherwise it will fail. How can you put a new system in place with new processes and then expect not to match the roles to the system"** explaining that **"We use in SAP a tool called 'ARRIS', which maps activities and roles, so there is 'who does what', and that is absolutely critical, if you don't do that it is just impossible, just impossible to run a system"**. Neil Rushby also said **"I would say it is critical to assign new responsibilities"** whilst Stephanie Snaith says **"It can only be not critical when ten thousand people in an organisation are doing the same job"**, explaining that **"It is essential in industry otherwise you just wouldn't make it"**. Ian Farrar said **"we certainly recommend it to the project board"** and described that **"an example may be a store man may be booking in stock manually, we can now say ok, let's switch to bar-coding, or RFID tags, the store man now has to be trained on ERP. He has to understand the technology behind the bar-coding and so his job role can change quite a lot really"**. Simon Hulse believes that these responsibilities are assigned to a **"user which sticks their hand up and is very interested and a user that really wants their voice to be heard, typically they would go**

on to become the super users" explaining that **"we would actively seek out the people who ask the questions or raise issues and say to them, well if you think this is an issue, you become responsible, we will train you in how to make this area more efficient"**. Wes Simmons believes it is more passive, explaining that **"I think that just happens, if you get your role out right and you get your process mapping right then people understand that this is now clear what their responsibilities are"** explaining further that **"what tends to happen is that people that are responsible for things just get responsible for more things"** going on to say **"the best example of this is, I was once sat in a presentation to a major UK construction company and their head of procurement, we are talking about authorisation of purchase orders, you know, big important process, you know, it usually takes a few people to authorise, and this guy, head of procurement for the company said, 'we don't need that', I said 'Why not', he said, 'because we all sit in the same office, all the buyers, central procurement sit in the same office, so when they want something authorising, all they do is say 'Hey, Fred, can I buy this', and I go yes or no', there was a stunned silence, not least from which was me, and I stood there and the group FD said 'the views that are expressed round this table are not necessarily those of the management of this business', i.e., we are going to have authorisation of this"**. Dominic Rea related this to the current research setting saying **"it is the old thing, our experience in the nineties of Public sector work is that change is a bad thing"** comparing this by saying **"where as its essential in industry"**.

SUMMARY OF POTENTIAL CSF

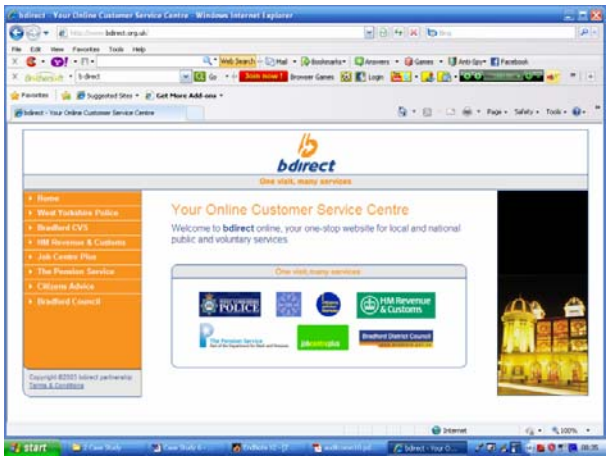
Table 88: Respondent Feedback

Stakeholder	Level of support	Count
Project Team	Rejected	0
Consultant	7 Accepted 0 Rejected	7
	Total	7

Appendix 37: Bradford Council as a CFO

Bradford Council provides a number of ERP driven services, including Bdirect, The ERP enabled Online Customer Services Centre which joins up services provided to Bradford Citizens for: West Yorkshire Police, Bradford CVS, HM Revenue & Customs, Job Centre Plus, The Pension Service, Citizens Advice and Bradford Council (Below), The Online Recycling Collection Date Checker (Below) and the Online Waste Disposal Location Finder which facilitates the disposal of Asbestos, Green Waste, Batteries (Vehicle), Handbags, Batteries (Domestic), Metal, Books, Oil, Brick/Rubble, Paint Cans, Paper, Cardboard, Plasterboard, Cartons (Tetra Pak*,) Plastics, Chemicals, Polystyrene, Electrical, Textiles / Shoes, Fluorescent Tubes, Tyres, Glass, Wood to the nearest relevant recycling centre.

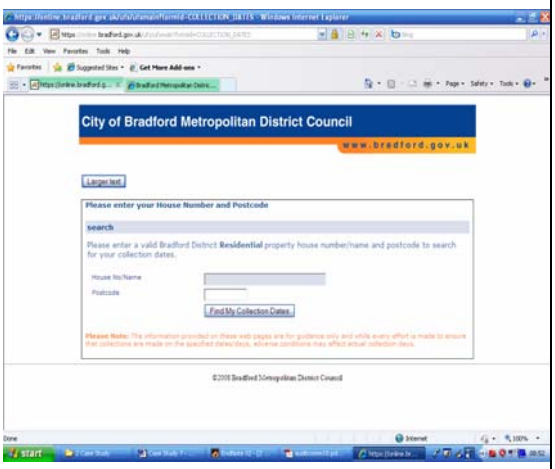
The ERP enabled Online Customer Services Centre



Source: bdirect website (2010)

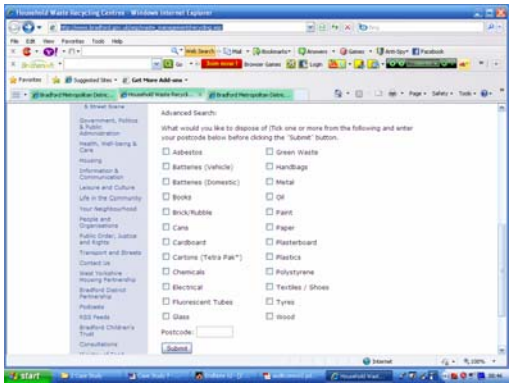
Joined up services provided to Bradford Citizens for: West Yorkshire Police, Bradford CVS, HM Revenue & Customs, Job Centre Plus, The Pension Service, Citizens Advice and Bradford Council.

The Online Recycling Collection Date Checker



Source: Bradford Metropolitan District Council website (2010)

Online Waste Disposal Location Finder



Source: Bradford Metropolitan District Council website (2010c)

Source: Bradford Metropolitan District Council website (2010c)

Indicator 1 – Internal Service Quality Measurements (2003/8).

Increasingly, public sector organisations are being held accountable for their service performance, and many are taking action to improve the quality of the services they offer. Measuring the improvements in service quality is difficult, and the CPA was established with the sole purpose of monitoring service quality of local authorities, which provides a five star rating on an annual basis (Local Government Performance 2008), and the independent body responsible for providing this evaluation through this process was the Audit Commission (2008).

Table 89: Written Communication Performance (including e-mails)

Responded to within 5 working days (2003/8).		
*Graph updated to March 2009.	TARGET %	ACTUAL %
2004 - 2005	86%	90.17%
2005 - 2006	94%	90.66%
2006 - 2007	92%	92.84%
2007 - 2008	93%	94.20%
2008 - 2009	94%	92.60%*

Source: (Bradford City Council 2010)

Table 90: Complaints Performance

Complaints responded to within 10 working days (2003/8).		
*Graph updated to March 2009.	TARGET %	ACTUAL %
2004 - 2005	90%	65.66%
2005 - 2006	93%	87.17%
2006 - 2007	94%	90.43%
2007 - 2008	94%	89%
2008 - 2009	94%	76.57%*

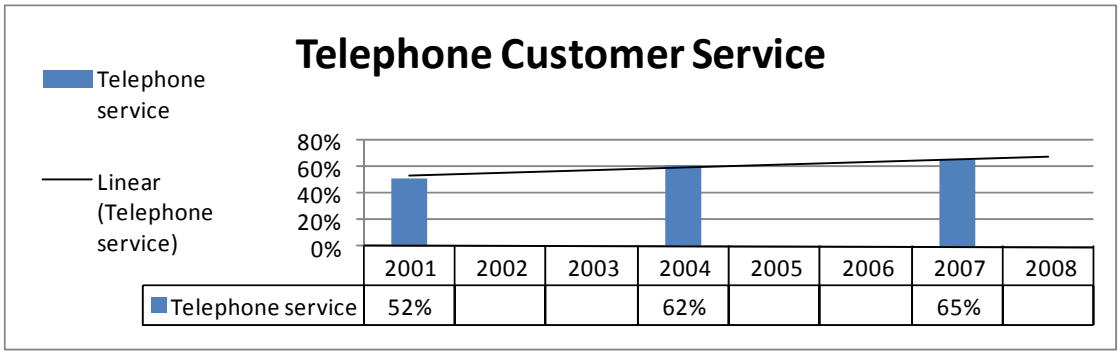
Source: (Bradford City Council 2010)

Indicator 2 – AUDIT COMMISSION (Independent Audit of Service Quality Measures, 2001/8).

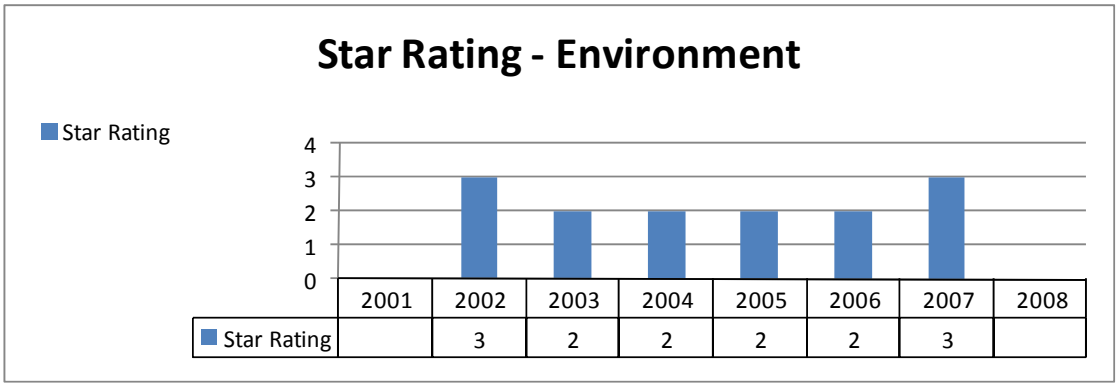
The Audit Commission is an independent body, a watchdog to ensure that local authorities are spending Public money wisely in delivering services for local people and communities.

The Comprehensive Performance Assessment (CPA) was established in 2002 which used "the harder test", which constitutes a service quality measurement based on 0 to 4 stars, with 4 being the highest (Audit Commission 2005).

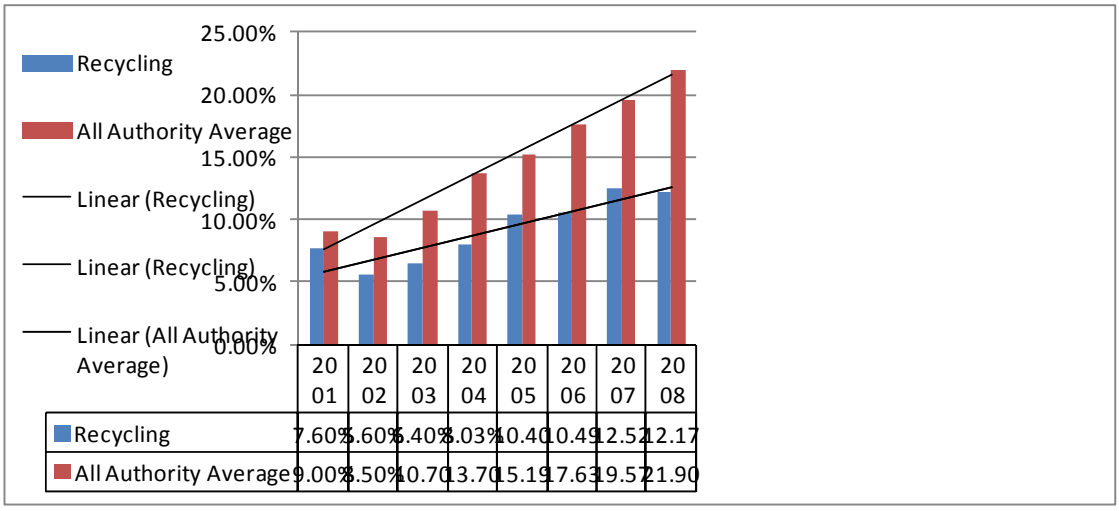
The environment is one of seven categories used to evaluate a Local Authorities service quality, this indicator has been used to demonstrate the performance of Bradford City Council. This information is recorded under the "All local authority Best Value Performance Indicators and User Satisfaction data" on the Audit Commission website (2010).



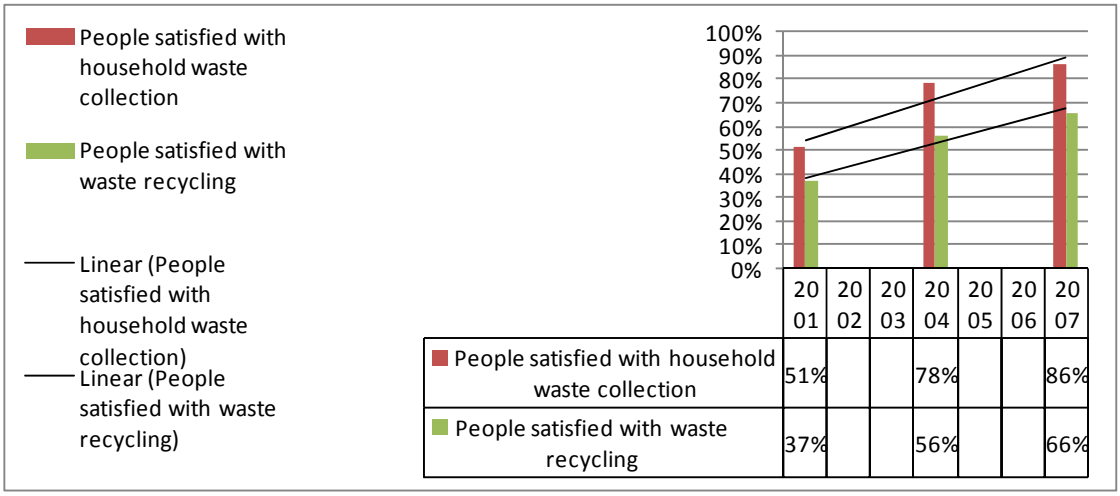
	2001	2002	2003	2004	2005	2006	2007	2008
Telephone service	52%			62%			65%	



	2001	2002	2003	2004	2005	2006	2007	2008
Star Rating		3	2	2	2	2	3	



	2001	2002	2003	2004	2005	2006	2007	2008
Recycling	7.60%	8.60%	10.40%	13.03%	15.40%	17.63%	19.52%	21.90%
All Authority Average	9.00%	8.50%	10.70%	13.70%	15.19%	17.63%	19.52%	21.90%



	2001	2002	2003	2004	2005	2006	2007
People satisfied with household waste collection	51%			78%			86%
People satisfied with waste recycling	37%			56%			66%

Indicator 3 - AUDIT COMMISSION AUDIT 2008

A corporate assessment was carried out under section 10 of the Local Government Act 1999, under which the Audit Commission has power to inspect local authorities' arrangements for securing continuous improvement. The assessment for City of Bradford Council was undertaken by a team from the Audit Commission and took place over the period from 25 January 2008 to 8 February 2008. This independently prepared report was published in June 2008 (Audit Commission 2008b).

Heading: Capacity

What is the capacity of the Council, including its work with partners, to deliver what it is trying to achieve?

"The Council uses ICT effectively to meet its priorities. Significant investment through Bradford-i has been used to improve a range of systems including payroll, land charges, and revenues and benefits, although the benefits to the Council in terms of reduced staffing costs and improved back office processes are yet to be fully realised. B Direct [a front end service utilising the ERP portal framework] provides a contact centre, a multi-agency one-stop shop in Bradford city centre and other one-stop shops in areas such as Keighley and Manningham. These deliver good quality services and have resulted in improved customer experience. For example the multi-agency one-stop shop includes Job Centre Plus, council tax, Housing benefits and Citizens Advice Bureau, enabling residents to deal with a range of employment and financial issues in a single visit. There has been significant improvement in the way complaints are dealt with following the creation of a corporate complaints team and satisfaction with handling complaints has increased. This demonstrates the Council's commitment to improving customer services."(p22). In addition, in assessing the area of developing sustainable communities, the report comments that "Recycling has increased and resident satisfaction has continued to improve." (p25).

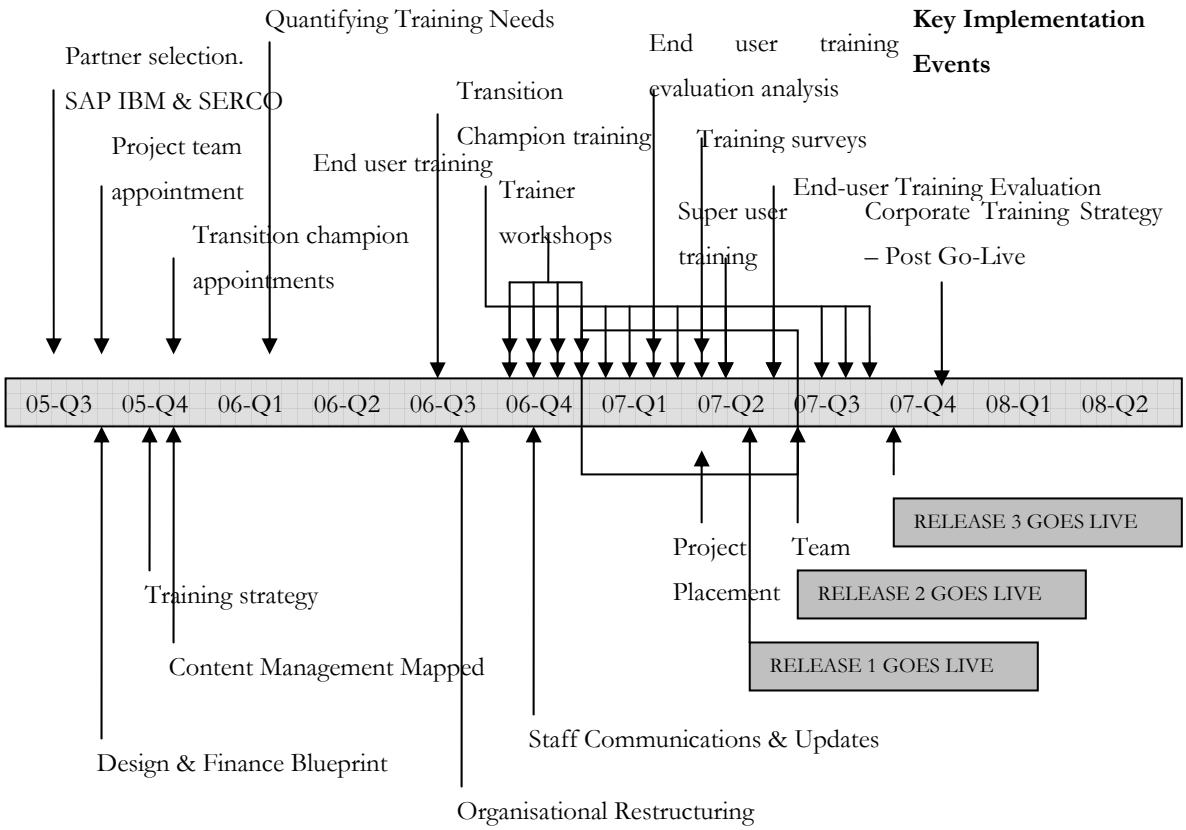
Overall Rating: The CPA gave a 2 star rating 'adequately improving'.

Summary: Indicators of success

In 2003 Bradford lost its 3 star rating in the Environment Category, it was re-attained in 2007. The Recycling satisfaction has increased from 7.6% in 2001 to 12.17% in 2008. Bradford City's records show from 2005 to 2009 written communication (including e-mails) and dealing with complaints improved.

In the final year of the statutory duty to record local authority PI, Bradford Achieved an overall 2 star performance in 2008 'improving adequately'. However, one important indicator was 'use of resources' where Bradford council was rated as a three star local authority, 'consistently above minimum requirements – performing well'. (Audit Commission 2008a).

Appendix 38: All Major Implementation Milestones



Appendix 39: Consultant Details

Table 91: Consultant Details

Consultant	Years Experience	Implementation Life Cycles	Org. Type	Target Market	Special Notes
PRIMERILY LARGE IMPLEMENTATONS					
Wes Simmons [November 1st] General Manager The Sage Group plc http://www.sageforconstruction.co.uk/Company_management.asp	30 years	100 +	Supplier	Large Construction/ Utilities	Wes specialises in the Construction Industry
Hamid Aghassi Founding Director Bryok http://www.bryok.com/meetOurTeam.html	25 years	100 +	Supplier	Large	Hamid has implemented one of the world's largest ERP systems. Hamid specialises in the Utilities Industry
PRIMARILY SME IMPLEMENTATONS					
Dominic Rea Sales Director K3 Business Technology Group http://www.k3btg.com/	25 years	170 +	Supplier	SME/Large Manufacturing/Retail	
Neil Rushby Project Team Manager Access Supply Chain http://www.theaccessgroup.com/	18 years	4 a year, about 72 in total	Supplier	SME	
Ian Farrar Head of Sales and Marketing Datawright Computer Services Limited http://www.datawright.com/	15 years in Design Engineering and three years in ERP software Business Development	"In the three years I have worked with Datawright I have helped 15 organisations implement our Kingfisher software."	Supplier	SME	[This organisation worked with Durham Business School to set up their process mapping]
Simon Hulse Team Leader of the Global IS Solutions Torex http://www.torex.com/	10 years	30	Supplier Torex employs 1,200 staff across 12 countries	SME/Large	[This is the organisation that implemented ERP at ITW-Envopak]
INDEPENDANT CONTRACTOR					
Stephanie Snaith Founder of Gradient Consulting http://www.gradientconsulting.com/index.php	13 years	20 +	Consultancy	SME	Stephanie founded gradient in 1997.

Appendix 40: Client Questionnaire

Questions Regarding the Training Implementation

Benefits Planning (Identifying the value)

Q) What were the key objectives of the training strategy?

Was this training strategy prepared independently by you, or were wider members of the project team involved. If so how did they influence your delivery of the training?

1 [CSF Key Word: Develop a holistic training strategy]

Q) How were the training courses developed?

How important was it to integrate aspects of customer management into the training course content?

2 [CSF Key Word: Integrated customer management training].

Q) How were the training methodologies evaluated?

How important was the cost benefit analysis is outlining options available?

3 [CSF Key Word: Undertake cost benefit analysis]

Benefits Delivery (Realising the value)

Q) How did you decide upon which methodologies to use?

How important were the views of the staff?

4 [CSF Key Word: Receptive training approach]

Q) What were the key issues in maximising the delivery of the training?

5 [CSF Key Word: Timing of delivery]

Q) How were users encouraged to use the system?

How important was it to collect users' reactions towards the system? How did you deal with these reactions?

6 [CSF Key Word: Tackling technophobia]

Benefits review (Measuring the value)

Q) How was the total training requirement quantified?

Was skill based segregation helpful?

7 [CSF Key Word: Undertake skills based training]

Q) How did you measure the effectiveness of the training delivered?

How important was it to collect course feedback? What did you do with this information?

8 [CSF Key Word: Training course evaluations]

Q) Did the overall Corporate strategy influence the training review process?

Did a structured approach help you to focus on delivering benefits?

9 [CSF Key Word: Develop a benefits delivery outlook to training]

Benefits Exploitation (Maximising the benefits)

Q) What role did the project champions play in the adoption of the ERP system?

How important was it for the Transition Champion to promote the benefits of the system?

10[CSF Key Word: Promote the benefits of the system]

Q) How involved in the training programme were IBM and Serco?

How important was it to ensure the vendors knowledge and experiences were transferred to the Council staff?

11[CSF Key Word: Ensure knowledge transfer from the vendor]

Q) What role did the super users play in the adoption of the ERP system?

How important was it for the super users to disseminate knowledge across the organisation?

12[CSF Key Word: Internal dissemination of knowledge]

Q) Why was post implementation corporate ERP training established?

Would you say that creating highly skilled end-users would increase the value of the ERP system?

13[CSF Key Word: Create knowledge workers]

Questions Regarding ERP Processes

Benefits Planning (Identifying the value)

Q) Who were the main contributors of the system design?

To what extent were IBM and Serco involved in preparing the blueprint designs?

14[CSF Key Word: Collaboration based design]

Q) During the design phase what procedures did you go through to identify the potential benefits of the ERP system?

How important was it to allocate ample time and resources into the design phase?

15[CSF Key Word: Extensive benefits orientated planning]

Q) During the design phase what checks were in place to validate the identified benefits?

How important was it to undertake business scenarios enactment?

16[CSF Key Word: Business scenario enacting]

Q) How did you estimate the year on year financial contribution to be generated by the ERP system?

Were any re-evaluations of the projected benefits made during the implementation? If so, to which extent and why?

17[CSF Key Word: Conservative appraisal]

Benefits Delivery (Realising the value)

Q) Was the ERP system the initiator of benefits realisation for the Council or was there a wider agenda of which ERP was a part of?

Did the Council's 2020 vision play a part in the decision to implement ERP?

18[CSF Key Word: Linked with a vision]

Q) How did the strategic roadmap assist with the ERP implementation?

To what extent did the strategic road map lead to these benefits being realised?

19[CSF Key Word: Benefits orientated delivery]

Q) How did strategic communications assist with the ERP implementation?

How important was it to communicate the benefits of the new ERP system?

20[CSF Key Word: Communicate the benefits]

Benefits Review (Measuring the benefits)

Q) What was the key role of the Bradford-i project team?

How important was it for the Bradford-i project team to undertake interdepartmental communications?

21[CSF Key Word: Strong interdepartmental communications]

Q) When setting up the Bradford-i project team, on what basis were the key management team members selected?

Was job specification an important issue during the selection process?

22[CSF Key Word: Staff selection]

Q) How was the Bradford-i project team equipped to successfully process and understand all of information coming from various departments?

Was it important to have a multi disciplinary team consisting of highly specialised experts within the Bradford-i project team?

23[CSF Key Word: Cross functional representation]

Q) How was information transferred within the Bradford-i project team itself?

Were team updates undertaken and if so how frequent were they?

24[CSF Key Word: Team bonding]

Benefits Exploitation (Maximising the benefits)

Q) To what extent was senior management involvement a factor in realising the full benefits of the ERP system?

As CEO what role did Tony Reeves play in the adoption of the ERP system?

25[CSF Key Word: Top management support]

Q) How did the ERP system affect the organisational structure?

Was the recent organisational restructuring in 2006 designed to deliver the full potential of the ERP system?

26[CSF Key Word: Radical organisational restructuring]

Questions Regarding ERP Technical Issues

Benefits Planning (Identifying value)

Q) What were the key criteria for selecting suppliers (IBM and Serco)?

In the selection of IBM and Serco were their respective CRM capabilities a key factor for their selection?

27[CSF Key Word: Find CRM specific expertise]

Q) To what extent were the roles IBM and Serco mapped out in terms of their delivery of technological innovation?

How did they articulate their strength at transferring their knowledge during the tendering stage?

28[CSF Key Word: Establish knowledge transfer systems]

Q) How did IBM and Serco work alongside Bradford City Council to add longterm value?

What were the key capabilities of IBM and Serco that particularly aligned with your vision of the new ERP system implementation?

29[CSF Key Word: Develop new capabilities]

Benefits Delivery (Realising the value)

Q) How did Bradford Council ensure that the SAP system delivered customer relationship management benefits?

How important was it to involve end-users in the portal integration process?

30[CSF Key Word: Stakeholder collaboration]

Q) How was the SAP system configured to offer increased knowledgeable support to end-users?

Does the SAP system offer increased decision making support for end-users? If so how was the content of the system transferred into useful knowledge?

31[CSF Key Word: Knowledge fusion management]

Q) What initiatives have Bradford City Council undertaken in order to open up the services to all of the residents of the community?

How has the One-Stop Shop improved the ERP service?

32[CSF Key Word: Customer facilitation]

Benefits review (Measuring the value)

Q) How was the portal integration governed to ensure the SAP system was being implemented correctly and that all the outlined benefits were being addressed?

Did the content mapping help to check the progress of individual parts of the implementation?

33[CSF Key Word: Content mapping appraisals]

Q) How was the portal integration governed to ensure the SAP system was being implemented correctly and that all the outlined benefits were being addressed?

Did the content mapping help to check the progress of individual parts of the implementation?

34[CSF Key Word: Establish steering groups]

Benefits Exploitation (Maximising the benefits)

Q) How did you maximise the benefits delivered to the system users?

35[CSF Key Word: System driven CRM training]

Q) How did job-role mapping and staff-skills evaluations contribute to maximising the benefits of the system?

Did you assign new responsibilities to staff members showing a high aptitude for the ERP system?

36[CSF Key Word: Assigning new responsibilities]

Appendix 41: Supplier Consultant Questionnaire

TRAINING – (IDENTIFIED CSF)

CSF 1: We found that a critical aspect was to incorporate **customer management in the training delivered**; specifically we found that all staff training courses should be individually tailored to incorporate this aspect.

1) Do you provide bespoke training materials or are the training materials standardised?

2) Would you say this is a critical task?

CSF 2: We found that a critical aspect was the **timing of the training delivered**; specifically we found that the training should be delivered no later than 8 weeks prior to each release.

1) What timing deadlines do you usually adhere to during the implementation?

2) Would you say this is a critical task?

CSF 3: We found that a critical aspect was **undertaking skills based training**; specifically we found that staff segregation into core and standard users and also into management and employee users, was critical.

1) What training segregation do you introduce during the implementation?

2) Would you say this is a critical task?

CSF 4: We found that a critical aspect was to **promote the benefits of the system** during the implementation; specifically we found that appointing transition champions was critical.

1) Do you appoint transition champions?

2) Would you say this is a critical task?

CSF 5: We found that a critical aspect was **ensuring knowledge transfer** from the supplier; specifically the supplier was directly involved in training the trainers.

1) To what extent to you get involved in training the trainers?

2) Would you agree with this?

CSF 6: We found that a critical aspect was **ensuring internal dissemination of knowledge**; specifically we found that appointing super users was critical in achieving this.

1) Do you appoint super users?

2) Would you say this is a critical task?

PROCESS – (IDENTIFIED CSF)

CSF 7: We found that a critical aspect was **undertaking a collaboration based design** of the ERP system; specifically we found that a two way relationship between he client and the supplier(s) involved was critical.

1) When establishing new processes for the implementation, to what extent do you collaborate with the client and other third party agencies to develop these?

2) Would you say this is a critical task?

CSF 8: We found that a critical aspect was **undertaking extensive benefits orientated planning** during the processes development phase; specifically we found that a lengthy (>five month) design phase was required.

1) When planning the design phase what time frame do you allocate?

2) Would you say this is a critical task?

CSF 9: We found that a critical aspect was undertaking **business scenario enacting** during the processes development phase; specifically we found that representations of live accounts was critical.

1) Do you introduce representations of live account testing?

2) Would you say this is a critical task?

CSF 10: We found that a critical aspect was having a **conservative initial appraisal** of the benefits; specifically we found that appraisals were required throughout the implementation which represented real time benefits and forecasts.

1) How do you appraise the financial value of the ERP system benefits?

2) Would you say this is a critical task?

CSF 11: We found that a critical aspect was **linking the implementation with a vision**; specifically we found that linking the implementation program with wider strategic or corporate objectives was critical.

1) Do you encourage clients to link their implementation with a wider vision?

2) Would you say this is a critical task?

CSF 12: We found that a critical aspect was **establishing a system to communicate the benefits**; specifically we found that it was critical to use a communications grid to map channel with stakeholder.

1) Do you prepare communications grids for clients to ensure the right message gets delivered to the right stakeholder?

2) Would you say this is a critical task?

CSF 13: We found that a critical aspect was having **strong interdepartmental communications**; specifically this was required to review the new processes established.

1) What departmental communications links do you establish?

2) Would you say this is a critical task?

CSF 14: We found that a critical aspect was ensuring that **staff selection within the project team** was on a job specification basis; specifically we found selecting internal staff with specific skills was critical.

1) To what extent do you get involved in selecting staff criteria for the project team?

2) Would you say this is a critical task?

CSF 15: We found that a critical aspect of project team recruitment was having **cross functional representation**; specifically we found that internal members should be seconded from selected key departments.

1) To what extent do you get involved in selecting staff representation within the project team?

2) Would you say this is a critical task?

CSF 16: We found that a critical aspect was **team bonding**; specifically we found that regularly coordinated meetings and frequent social outings are critical.

1) What team building exercises do you introduce in the implementation process?

2) Would you say this is a critical task?

CSF 17: We found that a critical aspect was having **top management support**; specifically we found that CEO involvement is critical.

1) Do you encourage the CEO of an organisation to take an active part in the implementation?

2) Would you say this is a critical task?

CSF 18: We found that a critical aspect was undertaking **radical organisational restructuring**; specifically we found that a new top management layout was required to accommodate the new ERP system processes.

1) To what extent do you restructure organisations when implementing a new system?

2) Would you say this is a critical task?

TECHNOLOGY – (IDENTIFIED CSF)

CSF 19: We found that a critical aspect was ensuring **CRM specific expertise** from the supplier(s); specifically the client must align with a supplier who can add value to front end services.

1) How does your CRM expertise assist in implementations for customer facing organisations?

2) Would you say this is a critical task?

CSF 20: We found that a critical aspect was **establishing a knowledge transfer system** in planning the technical aspect of the implementation; specifically we found that inputs and activities should be clearly outlined for each stakeholder.

1) To what extent do you map out your provision of technical support?

2) Would you say this is a critical task?

CSF 21: We found that a critical aspect was **developing new capabilities**; specifically we found any new capabilities should be managed either internally of by appointment of an application service provider.

1) To what extent do you work with ASP in developing new capabilities?

2) Would you say this is a critical task?

CSF 22: We found that a critical aspect was **knowledge fusion** in delivering the technical aspect of the implementation; specifically we found that it was critical to discover information synthesis from any existing legacy systems for data input to create historic customer accounts.

1) How do you discover information synthesis between historic data and newly required data?

2) Would you say this is a critical task?

CSF 23: We found that a critical aspect was ensuring the Client's **customers' needs are facilitated** in the technical aspect of the implementation; specifically ensuring front end services were appropriately integrated and delivered for improving services.

1) What degree of customer facilitation of the Client do you incorporate when establishing front end services?

2) Would you say this is a critical task?

TRAINING – (INCONCLUSIVE OR REJECTED CSF)

UNVALIDATED CSF 24

Our research drew no conclusions on who should be involved in the preparation of the **training strategy document**. Specifically it was noted that the training materials had been prepared by the Supplier and only modified by the Client.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 25

In planning the training methods, our research found that undertaking a **cost benefit analysis** of each option did not influence the decision made. Specifically it was found that the training method used (classroom based training) centred only on efficiently delivering the logistics of the operation (6000 staff members) and accommodating the needs of the trainers.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 26

In delivering the training, our research found that even when a **receptive training approach** was used (pre staff survey of preferred approaches), this was not acted upon. Specifically we found that this was omitted due to time constraints of the implementation schedule.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 27

In delivering the training, our research drew no conclusions on the issue of **tackling technophobia**. Specifically we found that as the training is delivered prior to go live, it is inconsequential at this point.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 28

In reviewing the training, our research found that undertaking **training course evaluations** was not critical. Specifically we found that where they are undertaken they are not acted upon due to time pressures.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 29

In reviewing the training, our research drew no conclusions on the issue of developing a **benefits delivery outlook to training**. Specifically even where training target benchmarks are set, these are largely sidelined due to time pressures.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 30

In exploiting the training delivered, our research found that **developing knowledge workers** was not critical. Specifically it was found that as there were high costs of marinating a centralised training body and also training completion signoff is often part of the overall contract with the Supplier, standard departmental training (post implementation) is the most cost effective solution.

1) How would you approach this?

2) Would you say this is a critical task?

PROCESS– (INCONCLUSIVE OR REJECTED CSF)

UNVALIDATED CSF 31

In delivering the new processes, our research found that undertaking a **benefits orientated planning** was not critical. Specifically it was found that even when the technical and benefits realisation road map activities are aligned, the technical implementation supersedes the benefit road map. The supplier is very milestone orientated in terms of the delivery of the technical aspect of the implementation, whereas the Client is not as milestone orientated regarding the benefits.

1) How would you approach this?

2) Would you say this is a critical task?

TECHNOLOGY– (INCONCLUSIVE OR REJECTED CSF)

UNVALIDATED CSF 32

In delivering the technology, our research drew no conclusions on the issue of developing **strong stakeholder collaborations**. Specifically we found that contractual bonds superseded any brainstorming activities to improve the implementation. The contract was quite inflexible.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 33

In reviewing the technology installed, our research drew no conclusions on the issue of undertaking **content mapping appraisals**. Specifically we found that content mapping is often exclusive to the new system and does not include any existing legacy or CRM databases, as a result no meaningful reviews of the service benefits can be achieved.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 34

In reviewing the technical implementation side of the project, our research drew no conclusions as to whether **establishing steering groups** is critical. Specifically we found that incidences of high staff turnover can compromise this. i.e. if a key staff members leave the organisation, it is difficult to replace them in time.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 35

In exploiting the technology implemented, our research drew no conclusions as to whether **systems driven CRM training** was critical. Specifically we found that in areas that required a high degree of staff engagement, this required a huge amount of knowledge transfer (e.g. detailed ERP package knowledge or reporting of important things) and so for the most part was impractical.

1) How would you approach this?

2) Would you say this is a critical task?

UNVALIDATED CSF 36

In exploiting the technical aspect of the implementation, our research found that **assigning new responsibilities** to staff members is not critical. Specifically we found that this is a very complex exercise and is ineffective unless job-role mapping is undertaken prior to the implementation along with staff-skill evaluations.

1) How would you approach this?

2) Would you say this is a critical task?

Appendix 42: 'Sensitising' the Project Team Placement Observations

The 15 key issues identified for CFO implementing ERPII.

PEOPLE	
	Managing change within CFOs implementing ERPII.
	Establishing a training strategy.
	Quantifying, delivering and evaluating the training.
	Identifying and providing end-user support.
	Preparing corporate communications.
PROCESS	
	Formation of the project team.
	Identifying the desired benefits.
	Identifying stakeholder involvement.
	Undertaking the design & finance blueprint.
	Establishing the strategic road map.
TECHNOLOGY	
	Vendor selection.
	Portal integration.
	Knowledge and content management.
	System maintenance.
	Project governance.

Appendix 43: Creation of Prospective CSFs

The 15 key issues identified for CFO implementing ERPII (Resources applies) were used to guide the 36 observations made during project one. Once processed through the combination model, the 36 prospective CSFs were formulated.

PEOPLE		
Issue	**Observation**	**Prospective CSF**
1. Managing change within CFOs implementing ERPII	• Bradford City Council outlined 2 possible options for future training.	To deliver future benefits from the new ERP system. **CSF Key word:** Create knowledge workers
2. Establishing a training strategy	• Bradford City Council took 3 months to prepare their Training Strategy document which advocated a "blended learning" environment to deliver the right knowledge at the right time.	An integrated team (who knew the importance of end users) decided upon the final training strategy. **CSF Key word:** Develop a holistic training strategy
	• Bradford City Council prepared a training schedule which ensured end users received their training no later than 8 weeks prior to each go-live date. Wider aspects of the training were built around this, such as early transition champion appointments, the training of the trainers and the timing of super user training.	The training was delivered as it was required (<8 weeks prior to their release). **CSF Key word:** Timing of delivery

3. Quantifying, delivering and evaluating the training.	• Bradford undertook constant course evaluations, these were used to improve and adapt training delivered.	All staff were trained in customer management within their discipline. **CSF Key word:** Integrated customer management training
	• Bradford evaluated each of the methods thoroughly, listing the advantages and disadvantaged of each in relation to its organisation.	The training evaluation was via a cost and results based analysis. **CSF Key word:** Undertake cost benefit analysis
	• Bradford City Council undertook a pre training survey, to identify the feelings of the staff involved. Delivering training that the end-users felt comfortable with was seen as a critical issue.	A pre staff survey of all 6,000 staff was undertaken. **CSF Key word:** Receptive training approach
	• Bradford Council issued usernames and logins which helped with promoting self identity and dealing with technophobia. This was also dealt with by the use of super users, transition champions and corporate communications.	Self identity programmes were initiated e.g. individual logins etc. **CSF Key word:** Tackling technophobia
4. Identifying and providing end-user support.	• Bradford City Council identified 180 core users of an entire user base of 6,000.	Staff were segregated into Managers and Employees and also core users were separated from standard users **CSF Key word:** Undertake skills based training
	• Bradford undertook	Post training questionnaires

	constant course evaluations, these were used to improve and adapt training delivered.	were issued to all end users after their training. **CSF Key word:** Training course evaluations
	• Bradford Council outlined an "eight phase training strategy" in order to review training progress and verify whether it measured up to the initial approach of focusing on delivering benefits.	An 8 phase training approach was used. **CSF Key word:** Develop a benefits delivery outlook to training
5. Preparing corporate communications.	• Transition champions were appointed on a voluntary basis, but were selected according to their status. In all there were in excess of 20 for the entire organisation.	The transition champions were critical in promoting the benefits. **CSF Key word:** Promote the benefits of the system
	• All trainers were asked to perform dry-runs of training courses, this was managed directly by Linda George, the Head of Training. A series of training sessions were run by IBM in order to ensure they gained a solid understanding of the solution	IBM assisted in training the trainers. **CSF Key word:** Ensure knowledge transfer from the vendor
	• In total 52 super users were appointed and in the process of appointing super users, the key criteria was that they were representatives from across the Council's departments and so selection was partially on a geographical basis.	Super users supported end users in applying the training, providing on site training support. **CSF Key word:** Internal dissemination of knowledge

PROCESS		
Issue	**Observation**	**Prospective CSF**
1. Formation of the project team.	• Bradford Council undertook a seven month process of outlining a comprehensive communications strategy which began in June of 2005, and was a key responsibility of the Bradford-i project management team.	The project team developed good internal relations throughout the organisation. **CSF Key word:** Strong interdepartmental communications
	• Detailed job specifications were outlined before the appointment of any members of the Project team.	Good managers and technically able staff were identified for the project team members via specific job specification requirements. **CSF Key word:** Staff selection
	• The project team comprised of a diverse range of highly skilled professionals, with expertise in all areas of the organisation.	Internal members were seconded from selected from key departments to ensure a full representation. **CSF Key word:** Cross functional representation
	• The project team developed good internal relations. Regular meeting and reporting systems were set in place so that all staff knew of up and coming commitments.	Regular social outings were undertaken. **CSF Key word:** Team bonding

2. Identifying the desired benefits.	• The benefits outlined where; improved access to services, improved customer services, increased customer satisfaction, improved accountability and a fully integrated back office system. [Items recorded in order of publication i.e. perceived importance]. .	Business scenarios were acted out representing real accounts. **CSF Key word:** Business scenario enacting
	• According to a recently published update "Implementing Electronic Government Return 2006 (IEG6)" it has been stated that the ERP project will deliver case realisable benefits to the Council of £30 million. Although the initial cash realisable benefit was a conservative £5 million	An initial £5m and subsequent £30m benefit was outlined. **CSF Key word:** Conservative appraisal
	• Bradford Council aimed to be one of the UK's top performing local authorities, and was committed to delivering a high quality service to the citizens of the community for which it serves. This strive for improvement began in 2000, and the cornerstone of this has been the development of their 2020 vision.	Linked with the Councils 2020 vision. **CSF Key word:** Linked with a vision
	• A parallel integration of technical and realisation roadmaps were undertaken. Yet only a 3 year roadmap was prepared for the technical roadmap compared with a 5 year realisation roadmap.	Technical aspects ran parallel with the benefit scope road maps. **CSF Key word:** Benefits orientated delivery
	• A five month process was undertaken to	A lengthy 5 month design

	undertake a comprehensive communications strategy. In total seven key themes were highlighted to be communicated.	phase was undertaken. **CSF Key word:** Extensive benefits orientated planning
3. Identifying stakeholder involvement.	• Bradford City Council identified seven stakeholders and ten available communications channels, this initial process was used to determine the effectiveness of selected communication channels to individual stakeholders.	A communications grid was utilised mapping channel with audience for maximum effectiveness. **CSF Key word:** Communicate the benefits
4. Undertaking the design & finance blueprint.	• A lengthy time frame (5 months) was allocated into the blueprint phase utilising considerable resources.	A complex and integrated collaboration between the Council, IBM and Serco was undertaken. **CSF Key word:** Collaboration based design
5. Establishing the strategic road map.	• The Chief Executive was responsible for outlining chief positions within the restructuring and stipulating their respective responsibilities. He was also put in charge of the performance committee.	The CEO Tony Reeves played an integral role and he personally signed off many key issues and was present on many PR initiatives. **CSF Key word:** Top management support
	• Bradford City Council undertook a wholesale change to their management structure during to accommodate the ERP implementation.	Bradford Council adopted a new top management layout that affected many of the service areas. **CSF Key word:** Radical organisational restructuring

TECHNOLOGY		
Issue	**Observation**	**Prospective CSF**
1. Vendor selection	• Bradford City Council appointed "IBM" as their software provider, the reason they chose them was on account of their vast experience at dealing with Public Sector implementations. IBM supplied SAP as the two organisations have had a strong corporate link since 1999.	Bradford Council aligned with stakeholders that could add value. **CSF Key word:** Find CRM specific expertise
	• The role of the software provider was outlined initially, this indicated the requirements of the vendor which included providing the content management model and providing the functionality aspects.	Inputs and activities were clearly outlined for each stakeholder. **CSF Key word:** Establish knowledge transfer systems
	• Bradford City Council appointed "Serco" as their application service provider. Not all Clients implementing ERP utilise the services of ASP's, but these relieve a great deal of the technical support required from the interactive interface system.	Rely upon the expertise of the ASP outsource 'specialist'. **CSF Key word:** Develop new capabilities
2. Portal Integration	• Bradford City Council integrated front end users into the portal integration process, they were valued members of the process.	The Council ensured that key skilled personnel from critical departments were in collaboration with the ASP during the portal integration. **CSF Key word:** Stakeholder collaboration
3. Knowledge and	• Delivering knowledge synthesis was	Knowledge fusion was

content management.	determined to be key. i.e. collating all similar areas of information to develop a clear framework for future input.	undertaken, specifically by discovering information synthesis for data input. **CSF Key word:** Knowledge fusion management
	• Bradford City Council thoroughly mapped the services they were providing to their customers through a model creation and they delivered these through a single portal	One stop shop developed and maximised. **CSF Key word:** Customer facilitation
4. System maintenance	• The training delivered was entered onto the system so that a training-delivery was integrated with a job role mapping to ensure the system maintained training recods.	CRM training was scheduled for all communities of interest and was designed to develop business benefits, the progress was closely monitored **CSF Key word:** System driven CRM training
	• Bradford City Council used two key steps, initially process changes were undertaken by the information managers, then knowledge administrators were given the task of relaying the job descriptions to the content service providers where roles, skills and capabilities were mapped.	Job roles and staff skills were thoroughly mapped, which helped managers to assign individual responsibilities. **CSF Key word:** Assigning new responsibilities

5. Project governance	• Bradford Council thoroughly mapped the services they were providing to their customers. These individual areas include, Social Services, Development Services, Business Services etc.	The content model was mapped specifically with end user involvement. **CSF Key word:** Content mapping appraisals
	• Bradford City Council allocated five separate governance bodies to ensure tight governance of the project direction, each had a different mandate.	Five separate governing bodies, each with its own agenda were involved. **CSF Key word:** Establish steering groups

Appendix 44: Publication One

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ESTABLISHING A CRITICAL ERPII IMPLEMENTATION PATHWAY FOR CUSTOMER FACING ORGANISATIONS

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Abstract

This paper presents a combination model which sets out a critical pathway for ERPII implementation for customer facing organisations (CFOs). The model incorporates a resource based view of implementation and the implementation lifecycle (from conception to completion), allowing identified critical success factors (CSFs) to be considered at each stage. A case study analysis was undertaken to identify potential CSFs. These were subsequently appraised by four senior management members within the project team two years post go–live and cross referenced for validation against the views of seven highly experienced consultants within supplier organisations. Analysis of the validated CSFs using the combination model identified that CFOs require specific CSFs at particular stages of the implementation lifecycle. This type of organisation should invest heavily in people-related CSFs, with a particular emphasis upon these in the exploitation phase.

Word count: 5377

Keywords: ERPII implementation; customer facing organisation; implementation lifecycle; critical success factors; critical pathway

ESTABLISHING A CRITICAL ERPII IMPLEMENTATION PATHWAY FOR CUSTOMER FACING ORGANISATIONS

Abstract

This paper presents a combination model which sets out a critical pathway for ERPII implementation for customer facing organisations (CFOs). The model incorporates a resource based view of implementation and the implementation lifecycle (from conception to completion), allowing identified critical success factors (CSFs) to be considered at each stage. A case study analysis was undertaken to identify potential CSFs. These were subsequently appraised by four senior management members within the project team two years post go–live and cross referenced for validation against the views of seven highly experienced consultants within supplier organisations. Analysis of the validated CSFs using the combination model identified that CFOs require specific CSFs at particular stages of the implementation lifecycle. This type of organisation should invest heavily in people-related CSFs, with a particular emphasis upon these in the exploitation phase.

1.0 Introduction

Enterprise Resource Planning (ERP) is a software system that operates through a centralised relational database and, as such, is capable of integrating business processes within organisations (Ross and Vitale 2000). AMR research estimated the global ERP market to be $28b in 2006 (Jacobson, Shepherd et al. 2007). In addition, AMR research estimates the average cost of an ERP implementation for a fortune 500 company to be between $40 million and $240 million, whilst upgrades to ERPII have been reported by AMR and Gartner to cost on average 18% and 30%, respectively, of the initial ERP project cost (Beatty and Williams 2006). A recent report by Forrester Research has shown that 25% of European and Asian organisations intend to invest in their existing ERP systems in 2011 (Hamerman, Moore et al. 2011).

Implementing an ERP system is not an easy task, indeed there have been many high profile accounts of bankruptcy occurring through failed ERP implementations (Davernport 1998; Ragowsky and Somers 2002; Kim, Lee et al. 2005). The high street retailer, Woolworths, was investing in a substantial ERPII implementation project up-grade to serve its 820 UK stores (Ferguson 2008) just prior to filing for bankruptcy in 2008. In addition, a report by the Standish Group shows that, of all successfully implemented ERP systems, only about 30% deliver the full benefits initially outlined (Krumbholz, Galliers et al. 2000). Empirical research has highlighted that even when the technical implementation itself has been a success, there can be difficulties in establishing the most effective processes for achieving the desired benefits (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005), which has been termed technical isomorphism (Batenburg, Benders et al. 2008). Implementation problems

have resulted in only 35% of all ERP implementations being delivered on time and within budget (Dong, Neufeld et al. 2009).

Extended ERP (ERP II) has been defined as a next generation ERP system and allows internal business systems to be connected with those of the external environment of customers, suppliers and business partners (Bond, Genovese et al. 2000). ERPII systems can be used in both public and private sector organisations. Benefits that can be realised include: information sharing capability, considerable cost savings, process improvements, improved decision making ability, greater business efficiency, and better management of customer and supplier relationships (Beheshti 2006). ERPII facilitates electronic customer relationship management (e-CRM), which supports customer service personnel and improves interaction with customers leading to better services and customer satisfaction (Adebanjo 2003). Customer facing organisations (CFOs), which focus on developing CFA, can use this system to design business infrastructure around customers' needs.

Many public sector organisations have CFA and have therefore been investing in ERPII systems with the hope of achieving improvements in the form of e-CRM. For the public sector, business benefits include e-governance which has been shown to add substantial value to these organisations (Daniel and Ward 2006). One important example of ERP driven e-governance is the development of online enterprise portals which allow council staff, local residents and business partners instant access to their specific information requirements and associated transactional services.

Research has looked to successful implementations in order to find so-called critical success factors (CSFs) which organisations should incorporate to avoid implementation failures (Nah, Lau et al. 2001; Verville and Bernadas 2005; Soja 2006; Woo 2007). The literature appears to relate to CRM CSFs rather than those specifically relating to CFOs implementing ERPII. The current research has identified a critical pathway that CFOs should follow to successfully implement ERPII.

2.0 Research design and methodology

The current research focused on revealing the CSFs for a CFO which delivered a successful ERPII implementation. All methods applied adhered to the ethics and safety protocols of the Durham Business School Sub-Committee for Ethics. This research undertook a positivist approach, relying upon empirical observation of a successful implementation to discover patterns existing within its social context (Denscombe 2002). Careful attention was paid to the

research design, data collection and data analysis in order to ensure rigorous analysis (Dube´ and Pare´ 2003). The research design involved a review of the extant literature on critical issues for ERP/ERPII implementation, the identification of appropriate data collection points (Figure 1), the selection of an appropriate case study environment, the development of a combination model for understanding the identified issues, the preparation of interviews with senior management members within an ERPII project team, and subsequently with experienced consultants within supplier organisations for validating prospective CSFs.

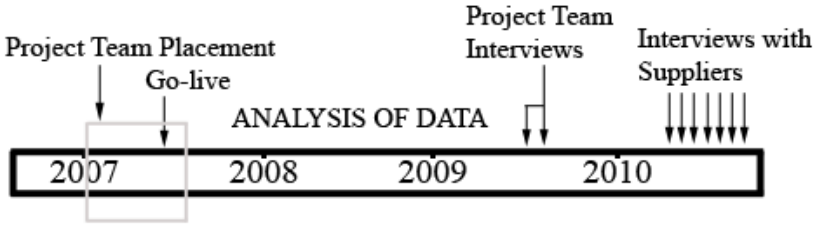

Figure 1. Data collection points (key research events)

2.1 Critical success factor analysis

Some of the earliest research in the field of information systems (IS) adopted a CSF methodology (Rockart 1979; Rockart and Flannery 1983), and it is now a standardised methodology for this type of research. Several studies have reviewed and ranked CSFs identified for ERP implementations (Somers and Nelson 2001; Finney and Corbett 2007). Although the CSFs described by these researchers are similar, there is no general consensus as to their prioritisation, with the exception of top management support, nor is there any allocation to particular stages of the implementation lifecycle. These studies have provided a useful theoretical background by which to evaluate the current research findings.

2.2 Case study analysis of a CFO

The issues associated with ERP/ERPII implementations are complex; they embrace change at many levels and different aspects are affected all of which need monitoring simultaneously. The current research adopted case study analysis at the outset to assist in the formulation of ideas (Benbasat, Goldstein et al. 1987). Case study analysis allowed these issues to be evaluated in their real life context (Yin 1994). Sekaran (2003) suggests that due to the qualitative nature of case study analysis, it can be used to reveal the causative factors in successful IS implementations.

A single case study was undertaken as this allowed for a more detailed evaluation of prospective factors contributing towards the successful outcome. During this stage of the empirical research, the six sources of evidence listed by Yin (1994) were incorporated into the

research methodology: (i) documentation, (ii) archival records, (iii) interviews, (iv) direct observations, (v) participant observations, and (vi) physical artefacts. To facilitate participant observation the researcher took on a role of employee within the project team, preceding and during the delivery phase of the ERPII implementation. This is an approach ideally suited for the collection of data in organisational and management research (Easterby-Smith, Thorpe et al. 1993). Information gathered from the participant observation was used to formulate the prospective CSFs evaluated during this research.

Bradford Council, a UK local authority which serves a population of 477,770 with a staffing capacity of 6,000, was selected for this case study. The council invested £170m in 2005 in a project called Bradford-i and the main aim was to improve efficiency and customer service through ERPII (Marshall 2008). The system went live in 2007. IBM and Serco worked in partnership to deliver a SAP based ERPII system. Benefits were described as: "Web-enabled secure access to core applications decreases the need for paper forms and manual data entry – reducing administrative workload and improving data quality. Integration of finance and procurement processes boosts efficiency and aids auditability and compliance. Employees can now interact directly with HR systems to perform administrative tasks. Simplified IT architecture improves flexibility and makes it easier to add new services." (IBM 2010).

2.3 Interview analysis of the prospective CSFs

Structured interviews were undertaken in order to understand which of the resource allocations contributed towards the realisation of benefits initially outlined. Compared with other research methods, face-to-face interviews offer little chance of misinterpretation (Hodgson 1987) and this two-way dialogue offered the best way to reveal valuable personal opinions from interviewees. To ensure reliability, the seven stages of interview design described by Kvale (1996) were incorporated into the preparation of all of the interviews held. Interviewees were presented with a copy of the questionnaire a week before the interview and transcriptions of their statements were presented back to them for self-review purposes one week after each interview.

Initially, follow-up interviews were scheduled with key Bradford-i project team members two years post go-live. The questionnaire prepared was structured around specific issues identified in the case study (36 prospective CSFs). These were validated using a funnel approach (Bickart 1993), whereby a general open (non leading) question regarding each specific issue was followed by a leading question, which contained the identified CSF. Special attention was paid to the terminology (O'Brien 1984; Couper 1996; Edmondson 1996) to avoid ambiguity

(Abramson and Ostrom 1994; Stout 1994; Bollinger 2001) in decoding the responses. To ensure that each prospective CSF was evaluated by an appropriate person, the head of training answered the people-related questions, whilst the accountancy manager, programme change manager and technical manager answered the process and technology-related questions.

Consultant interviews were held four months after the completion of the project team interviews. Within the field of ERP/ERP II research, interviewing consultant practitioners has proved to be a successful way to provide a taxonomy of CSFs (Parr and Shanks 2000; Taylor 2005). The views of the client organisation were presented to seven experienced consultants within selected organisations to further validate the findings. The consultants involved included: two founding directors, one sales director, one general manager, one head of sales and marketing, one project team manager and one team leader of global IS solutions. These views assisted in gaining a greater understanding of opportunities presented during ERPII implementations.

2.4 Data analysis

The six steps of analysis described by Kvale (1996) were adhered to during the analysis of the information obtained in the current research. The information was presented using a combination model that was developed by the author. In total, there were considered to be eight responses, or organisational views; the Bradford-i project management team and seven different ERP/ERP II suppliers. The factors were then classified as being strongly supported (7 or 8 respondents agreeing it was critical), marginally supported (4 to 6), weakly supported (1 to 3) and unsupported (0). Heat mapping was used to visually display all factors within the combination model. All strongly supported CSFs were then analysed by a process of discourse dissection. Meredith (1998) outlines that there is little benefit in adopting statistical analysis to single case study research, noting that richness of data is key for qualitative analysis.

2.5 Model application to identify the CSFs relating to benefits realisation

The combination model was based upon the work of Melville, Kraemer et al. (2004) and Ashurst, Doherty et al. (2008) and was developed to map CSFs to the different stages of the implementation lifecycle. The IT Business Value model of Melville, Kraemer et al. (2004) was used to classify identified CSFs into the three resource categories (people-related, process-related and technology-related) and subsequently the Benefits Realisation Capability model of Ashurst, Doherty et al. (2008) was used to locate them at appropriate stages of the implementation lifecycle (benefits planning, benefits delivery, benefits review, and benefits exploitation).

3.0 Findings

A total of 19 CSFs were classified as being strongly supported from the interview feedback and considered to be critical for successful ERPII implementations for CFOs. By using the combination model developed by the author, these CSFs were allocated to the different stages of the implementation. This generated critical pathway steps from a resource based perspective, which lead to a successful ERPII implementation (Figure 2).

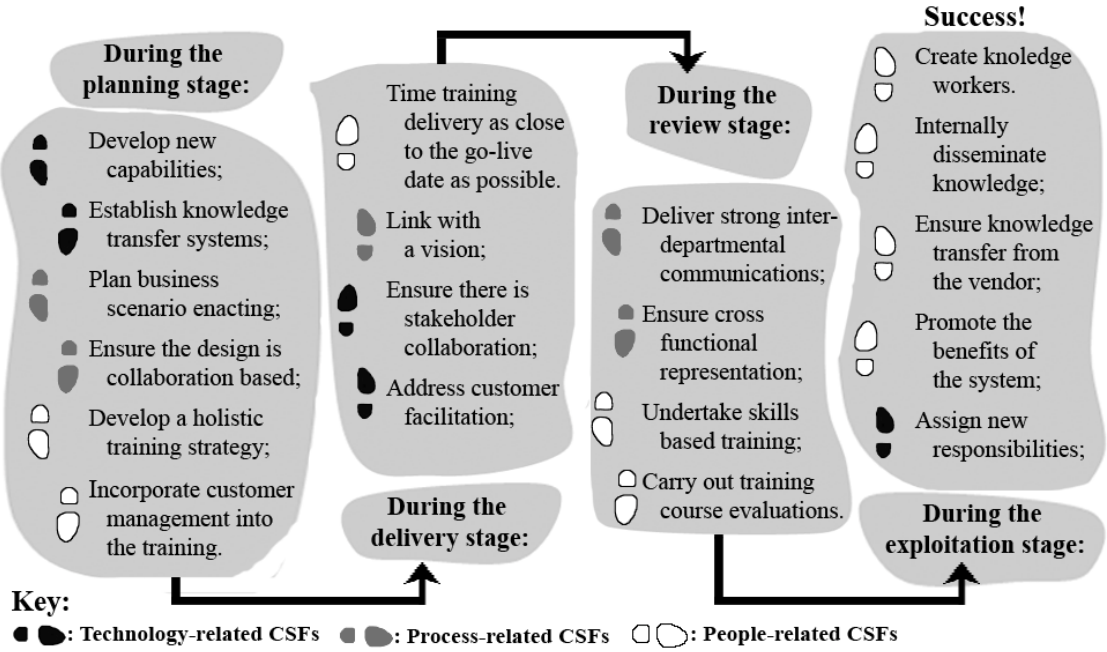

Figure 2. Critical pathway steps for CFOs implementing ERPII

3.1 Analysis of identified CSFs for CFOs

From a resource based perspective, people related factors account for nearly 50% of the CSFs identified in this research, whilst process and technology account equally for the remaining CSFs (Figure 3). This immediately highlights that whilst critical issues reside across the resource base of the CFO, particular attention must be paid towards people (training) related issues.

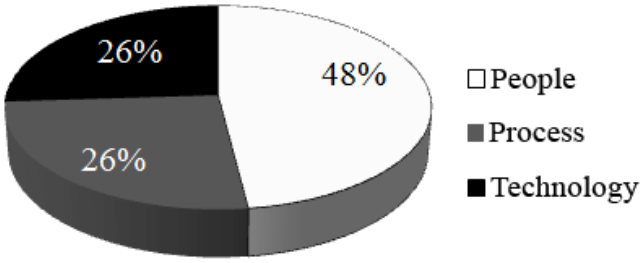

Figure 3. CSFs by resource base

From a benefits realisation perspective, our findings show that although opportunities present themselves throughout the implementation lifecycle, people-related benefits can be maximised by allocating resources primarily in the exploitation phase, whilst process-related resources should be allocated mainly into the planning and reviewing stages and technology-related resources largely allocated into both the planning and delivery stages (Table 1).

	PLANNING	DELIVERY	REVIEW	EXPLOITATION	
PEOPLE	25%	12%	25%	38%	100%
PROCESS	40%	20%	40%	0%	100%
TECHNOLOGY	40%	40%	0%	20%	100%

Table 1. CSFs by implementation lifecycle.

3.2 The technology-related CSFs identified for CFOs

Within the area of technology (Figure 2), our findings show that during the planning stage it is critical to develop new capabilities by clearly explaining desired outcomes of the system to the supplier(s). Consultants of software suppliers and application service providers can usually "see where an area of an application would be of benefit to users … then drive that forward" (Simon Hulse, Team Leader of Global IS Solutions, Torex). During the planning stage, inputs and activities must be clearly outlined for each stakeholder. It is critical to establish knowledge transfer systems from the supplier to the client and, as part of this the client must set up an internal network to foster this. For example, office space should be allocated to accommodate members of the supplier staff, so that they feel more integrated with the team.

During the delivery stage, CFOs must strive to improve customer facilitation through portal integration, providing a fully operational and integrated interface. In the case of Bradford Council, this was the one stop shop which was developed and maximised to improve transactional opportunities for the residents of Bradford. It is also critical to ensure strong stakeholder collaborations, possible through a contract. "The object of a contract is to facilitate an ongoing client supplier relationship" (Dominic Rea, Sales Director, K3 Business Technology Group), "but the contract mustn't be so inflexible that you will just push the technology in and you don't look at the benefits" (Hamid Aghassi, Founding Director, 1 Team Energy).

In order to exploit the benefits of the implementation it is critical to assign new responsibilities. Job roles and staff skills must be thoroughly mapped in order to help the managers to assign individual responsibilities: "If you get your role outright and you get your process mapping right then people understand what their responsibilities are" (Wes Simmons, General Manager, The Sage Group plc).

3.3 The process-related CSFs identified for CFOs

Within the area of process (Figure 2), business scenario enacting should be planned and carried out by acting out representations of real accounts, considering "the go-live should be a non-event and if you have done this bit correctly then it will be" (Dominic Rea). In addition, a collaboration based design should be developed whereby the suppliers "have expertise, the client has an understanding of the existing way of working" (Hamid Aghassi). This is to avoid technical isomorphism occurring.

Delivery of the implementation should be linked with the wider corporate vision so "that vision is translated into reality" (Hamid Aghassi). This is about "cascading the goals down ... because it is much harder for someone who is pushing the buttons to get the big picture, but they need to understand their part in the picture" (Stephanie Snaith, Founding Director, Gradient Consulting).

During the review stage, it is critical to ensure strong interdepartmental communications, and "the clients themselves have to do this" (Dominic Rea). This can be achieved through establishing a transition champion network; the transition champions communicate the benefits to the end-users and relay the problems back to the project team. In addition, cross-functional representation is critical, whereby internal members are seconded from key departments to form part of the project team. A full representation allows all departments and services to be considered during the implementation. This is particularly important at this stage so that departments can relay the problems that have arisen to a like-minded person within the project team who understands the implications. These problems can then be successfully relayed to the supplier, or internal IT, for action. "It is suicidal to do otherwise." (Dominic Rea).

3.4 The people-related CSFs identified for CFOs

Within the area of people (Figure 2), during the planning stage it is critical to develop a holistic training strategy which integrates aspects of customer management within functional training,

so as to address any customer facing transactional aspects of this new system. By taking the views of many stakeholders including those of the supplier who knows the software and those of the client who knows the organisation, a holistic training strategy will en-capture all essential training requirements so that it is bespoke for each department and adapted towards the customer facing services they offer. Integrating an element of customer management into the training material ensures the end-users learn how to use the system in performing their roles.

During the delivery stage of an implementation, the timing of training delivery is critical: "It is absolutely critical that you time the training before the go-live date" (Hamid Aghassi); "it needs to be close enough to the go-live for them to remember what they were shown" (Dominic Rea), "but enough time for them to practise" (Staphanie Snaith).

During the review stage, it is critical to undertake skills based training by segregating staff into managers and employees, and also separating core users from standard users so that the core training is targeted and "more detailed for the core users" (Ian Farrar, Head of Sales and Marketing, Datawright Computer Services Limited) once the system is live. It is also critical to evaluate the mainstream training courses at this stage, which is sometimes seen as "more analysis of the consultant to see if there is any feedback that indicates the consultants themselves need more training." (Neil Rushby, Project Team Manager, Access Supply Chain).

In order to fully exploit the benefits, it is critical to promote the benefits of the system which is a role of the transition champions, these "have to be internal staff"(Hamid Aghassi) so that internal values are upheld. In order to fully exploit the benefits, it is also critical to have ensured knowledge transfer from the vendor which can be achieved by having them train the trainers. The client has "to take ownership of the system, lock, stock and barrel and train the trainer is essential to that" (Dominic Rea), ensuring they can initiate their own future training requirements. To internally disseminate knowledge, a network of super users needs to be appointed and "you have got to make sure the super users see it as a long term job" (Wes Simmons). It is also critical to create knowledge workers who will be trained post go-live to deliver future benefits from the new ERPII system. This is critical to avoid "system atrophies" (Wes Simmons).

4.0 Discussion

ERP II offers end-users the ability to use information to analyse and provide the information required for both pro-active and re-active interaction with the customer (Pan and Lee 2003).

Within the public sector, ERPII can be used to facilitate eCitizen relationship, which is particularly beneficial within local government (Wong, Fearon et al. 2007). However, there is little research for CFOs, particularly public sector organisations implementing ERPII, looking to improve CFA. Identifying CSFs at different stages for re-engineering and introducing new ways of working is a methodology used in the EU COBRA project on corporate understanding (Coulson-Thomas 1995). The current research has used this approach to identify critical pathway steps for successful ERPII implementations for CFOs. Implementation teams need to understand which CSFs to concentrate upon at each stage and that resource allocation may also need to be applied differently at each stage.

Organisations have found it difficult to establish the most effective processes for achieving the desired benefits in ERPII implementations (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005). To overcome technical isomorphism, it is essential to develop a good working relationship with the supplier. Failed ERPII implementations have occurred on account of organisations not achieving this (Sharif and Irani 2005). In the current research, one consultant commented that: "We have a motto which says 'One team one plan'. One team one plan is all about this collaboration" (Hamid Aghassi), and this ensures that the technical capabilities and process requirements are aligned.

Indoctrinating staff to the new ways of an ERP system, and training them to a level at which they feel comfortable in utilising the system is key to benefits realisation from ERP (Gardiner, Hanna et al. 2002). It is important that the new ways of working are strongly communicated to the worker (Boersma and Kingma 2005). Our findings, regarding ERPII, corroborate this observation; we observed that opportunities for benefits realisation reside within the users of the system and, as such, particular attention should be paid to people-related issues such as training. Organisations should invest in training, just as they do in technology, to deliver continual post-implementation training.

4.2 Previously advocated CSF for ERP and CRM implementations

Top management support has been identified as the single most important CSF in both ERP and CRM implementations (Somers and Nelson 2001; Finney and Corbett 2007; King and Burgess 2008). The current research provides understanding of the extent of top management support and clarification as to the involvement of the CEO.

Top management support is critical for initialising the implementation project and keeping it on track. However, the nature of the support should not extend to CEO involvement in the

details, which could be counterproductive, and there is no need for them to play an operational role overly interfering in the critical pathway steps of the implementation. Two consultants felt that CEO involvement could misdirect the project; Wes Simmons commented that "Some CEOs have a very strange view of how their business works, I would say wrong", elaborating that "CEOs aren't involved in the day-to-day enough and what happens is they … start to cut a really big corner off and the people involved are going: "no, no the devil is in the detail!" ". This view was reinforced by Ian Farrar who commented that "CEOs tend to be non-detailed guys; they want to know the top level information, they don't want to get involved with the detail, and they leave that to the other board members or management team". In summary, in the words of Wes Simmons: "So senior management support, senior management encouragement, yes, actually having a CEO in the design team, No.".

5.0 Conclusions

The current research identifies critical pathway steps for CFOs ensuring pertinent CSFs are used to deliver a successful ERPII implementation. The newly developed combination model reveals the importance of devoting attention and resources to people-related activities, such as pre- and post-implementation training. The people-related CSFs are weighted towards the exploitation phase of the implementation, the process-related CSFs towards the planning and review stages and the technology-related CSFs towards the planning and delivery stages. It has been suggested that ERPII upgrades need to be treated as a new project and organisations should not underestimate the time and resources required (Beatty and Williams 2006). We therefore recommend that the critical pathway steps identified in the current research for an ERPII implementation should also be considered for upgrade initiatives.

This research recognises that top management support is critical, however, it identifies that CFOs should pre-define the role of the CEO involvement, so as to maximise their political influence and their role in creating a supportive environment but avoid derailment due to detailed operational involvement in project implementation.

Appendix 45: Publication Two

DELIVERING TRAINING FOR HIGHLY DEMANDING INFORMATION SYSTEMS

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Abstract

Purpose
There is a lack of research covering the requirements of organisations implementing highly demanding information systems (HDIS) in regards to their appropriate training requirements. The aim of this paper is to help fill this gap.

Design/methodology/approach
This research investigates the training delivery within a customer facing organisation which successfully implemented a HDIS. A positivist case study was undertaken to identify resource allocation during the implementation lifecycle and training guidelines were prepared following in-depth interviews with client and supplier consultant practitioners.

Findings
Organisations implementing HDIS should invest in training throughout the implementation lifecycle. Two areas of training were found to be of importance; end-user training to avoid technical-isomorphism and post-implementation training to avois system atrophy.

Research limitations/implications
Further research is required for greater understanding of the role of training in tackling technical isomorphism and system atrophy if the full benefits of HDIS are to be realised.

Practical implications
Literature shows that training attracts the smallest proportion of the implementation resources. This research shows however, the critical role training plays in the successful implementation of HDIS and training needs should not be underestimated for the full benefits of the system to be realised.

Originality/value
This paper links the investment of resources into training with benefits realisation from HDIS.

Keywords: Post-implementation Training; End-user Training; Knowledge Workers; Information Systems; ERPII; Benefits Realisation

Article Classification: Research Paper

Introduction

In today's knowledge driven economy, customer facing organisations (CFOs) are relying more heavily on highly demanding information systems (HDIS) in order to manage growing customer expectations. HDIS, such as enterprise resource planning (ERP), offer end-users the ability to use information for both pro-active and re-active interaction with the customer (Pan and Lee 2003). ERPII, which is the next generation of enterprise systems, aligns organisational processes with the external environment helping organisations to undertake extended enterprise initiatives (Bond, Genovese et al. 2000). Indeed the use of ERPII to improve customer satisfaction has had a direct effect in achieving greater financial gain (Tsamantanis and Kogetsidis 2006).

The demand for ERPII is strong, even despite the current economic climate of austerity. A recent report by Forrester Research has shown that 25% of European and Asian organisations intend to invest in their existing ERP systems in 2011 (Hamerman, Moore et al. 2011). However, research has highlighted that even when the technical implementation itself has been a success, there can be difficulties in establishing the most effective processes for achieving the desired benefits (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005). This has been termed technical isomorphism (Batenburg, Benders et al. 2008). In tackling this, research has identified critical pathway steps for CFOs implementing ERPII systems (Norton, Coulson-Thomas et al. 2011).

Maintaining HDIS post implementation can also be problematic; ensuring that organisations continually deliver the benefits of their HDIS has proved to be an increasing challenge and system atrophy occurs when system capabilities are not utilised to their full potential. It has been suggested that many firms have knowledge capabilities but are wasting their knowledge driven opportunities (LaPlaca 2009). The lack of adequate training has been identified as a key reason for inefficiency in system usage (Henriksen and Andersen 2008).

Initial research in this area estimated that for a successful HDIS implementation, 15% of the overall budget should be invested in training (Volwer 1999; Vincent, Ashok et al. 2001). However, more recently it has been recognised that there is wide spread underestimation of the overall level of training required necessary to implement an ERP system successfully (Umble, Haft et al. 2003). Our research shows that significant resources should be invested into both end-user training and post-implementation training in order to deliver a successful HDIS.

Research Framework

A case study was undertaken of a CFO which successfully implemented ERPII. The organisation was a large UK Local Authority serving a population of 477,770, with a staffing capacity of 6,000. The ERPII system was seen as a strategic tool to support a customer focused vision and £170m was invested into this project. The main aim of this HDIS was to improve efficiency and customer service (Marshall 2008). The case study involved the primary researcher to undertake a five month placement as training officer within the project team and conduct an in-depth interview with the head of training two years post implementation. In addition, to fully understand the training requirements of the implementation process, interviews were also undertaken with senior consultant practitioners from seven ERPII supplier organisations. Each practitioner interviewed had 20 over years experience working within the field of ERP implementation, having tackled over 500 implementations between them.

Case Study

ERP implementations are complex; they embrace change at many levels and different aspects are affected which all need monitoring simultaneously (Benbasat, Goldstein et al. 1987; Yin 1989). A detailed single case study best suited this research, which is a longstanding method for undertaking IS research (Franz and Robey 1984). This type of analysis allows for the conversion of observations of complex issues and assists greatly in addressing qualitative issues (Bonoma 1985).

The six sources of evidence listed by Yin (1994) were incorporated into the research methodology which formed participant observations (Easterby-Smith, Thorpe et al. 1993). Observational research enables descriptive research of the behavioural patterns of the implementation, in its natural environment (Hunt, Sparkman et al. 1982). The method of conducting research within an organisation has been successfully used in previous ERP implementation research which has also facilitated the role of the "neutral observer" (Akkermans and Van Helden 2002 p37).

Validation of the observations made regarding training-related issues during the work placement was undertaken by means of face-to-face interviews (Hodgson 1987). The seven stages of interview design described by Kvale (1996) were incorporated for reliability. The questionnaire prepared for the head of training was structured around specific issues identified during the work placement. A funnel approach was used (Bickart 1993), whereby a general

open (non-bias) question regarding each specific issue was followed by a leading question if the respondent had not raised the point at the outset. Special attention was paid to the terminology (O'Brien 1984; Couper 1996; Edmondson 1996) to avoid ambiguity (Abramson and Ostrom 1994; Stout 1994; Bollinger 2001). Key factors were identified following the interviews with the seven experienced consultant practitioners from ERPII supplier organisations. Comparing client project team consultants' perspectives with supplier consultants' perspectives, has been shown to be an effective methodology for this type of research (Markus, Axline et al. 2000).

Data Analysis

The Benefits Realisation Capability model of Ashurst, Doherty et al. (2008) was used to locate training issues at appropriate stages of the implementation lifecycle. The training requirements were examined in terms of allocation to different areas of training, leading to the identification of those that are of importance for HDIS.

In total, eight respondents participated in this research; the head of training within the project team and seven consultants from ERPII supplier organisations. The factors classified as being critical were those that were strongly supported by at least 7 of the 8 respondents. A qualitative analysis of these critical success factors (CSFs) was carried out. Meredith (1998) outlines that there is little benefit in adopting statistical analysis to single case study research, noting that the richness of data is key for achieving rigour and for achieving extensive qualitative analysis.

Results

Our results highlight nine CSFs which apply to the training aspects of a successful HDIS implementation and are explained in the form of recommendations and guidelines. Our findings identified that these CSFs can be categorised into two distinct areas: end-user training and post-implementation training. The first is allocated within the planning, delivery and review stages of the implementation, whilst the latter is allocated to the exploitation stage of the implementation (Figure 1).

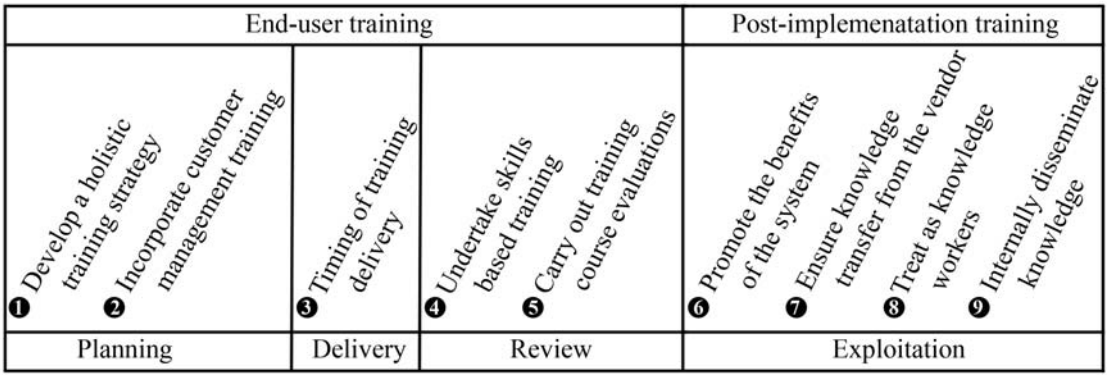

Figure 1. Training requirements for HDIS and their allocation throughout the implementation lifecycle.

Develop a holistic training strategy

In preparing a training strategy for the implementation, the case study organisation put together an integrated team, made up of several senior management members of all key partner organisations. This dedicated team specifically looked into the requirements of the end-users in terms of their training, training support and post-implementation requirements. In terms of the end user being able to perform their roles, the head of training (Respondent one) commented that "developing a holistic training strategy was very important". This view was reinforced by the consultant practitioners, indeed the General Manager of one of the supplier organisations (Respondent 2) commented that "we try to get involved in that because if the customer gets that wrong and the project failed, it will still be our fault".

Recommendation 1: A holistic training strategy should be developed, incorporating the views of both the client and supplier, ensuring resources are adequately allocated to end user and post implementation training requirements.

Incorporate customer management training

The case study organisation integrated an element of customer management training into the training material for each functional department to ensure that the end users learned how to use the system in performing their roles. This was ensured through acceptance testing by the trainers, who were all Council staff since they have a cultural understanding of the organisation. Respondent one commented that "Trainers were involved in user acceptance testing. The trainers were all council staff…the trainers worked alongside the subject matter experts" and that "The subject matter experts dealt directly with IBM in Belgium, so they sent the materials over, and IBM converted it into the e-learning and we had to pay for that service. This is why it was so expensive... We had training materials, then we did dry runs. So they delivered a dry run, with some experts to identify any improvements they needed to

make". From the suppliers' perspective, incorporating customer management training ensures the end users learn how to use the system to perform their roles. This was described by the Sales Director of one of the supplier organisations (Respondent 3), who commented that "education and training are about delivering specifics to [the Client]. The education is about showing different ways [the Client] can do things, but the bespoke training is then based on an intermediate step of extensive consultancy, to agree exactly how [the Client is] going to use the software". To ensure that an element of customer management is incorporated into the general training, the Head of Sales and Marketing of one of the supplier organisations (Respondent 4) pointed out that "we would learn about the business, in terms of business process mapping and then we would map their business processes to our software. That would then identify how the system would need to be set up, and it would also identify what training was required, and then the training is purely bespoke. So every training is different to every customer".

Recommendation 2: An element of customer management should be incorporated into training material for each functional department to ensure the end users can easily use the HDIS to perform their role. This is particularly important for customer facing roles.

Timing of training delivery

From the observations made during the project team placement, it was evident that the training activities were well coordinated and the timing of the training was very well organised to accommodate the end-user training which was delivered just prior to the go-live date. The case study organisation prepared an outline of training milestones mapping out every aspect of the training requirements. This included an indicator of exactly when the key issues of training curriculum, training needs analysis and training material were to be signed off for each release. A training window was scheduled for each release and timing was critical as the trainers needed enough time to prepare for the next release. Respondent one commented: "The go-live dates were key. We had no say over this at all. We delivered the training no later than eight weeks prior to a release, so it was fresh in their memories". From the supplier's perspective the timing of the training is very important, indeed the Team Leader of Global IS Solutions of one of the supplier organisations (Respondent 5) commented that **"**Training is usually in the last two weeks prior to go live and to be quite honest, the later the better". In addition, respondent three pointed out that "it needs to be close enough to the go-live for them to remember what they were shown" whilst the Founding Director of one of the supplier organisations (Respondent 6) raised the point that there must be "enough time for them to practice".

Recommendation 3: End-user training should be as close to the go-live date as possible so that they remember what they were shown, whilst being flexible enough to allow for mop-up training courses.

Undertake skills based training

The case study organisation singled out core users from standard users so that they could be supported with additional, more detailed training. This was to ensure that the core users could deliver the benefits in their new job roles and pass on this knowledge. These individuals were designated key project users and several become champions of a particular area. Respondent one commented: "We were training for the role mapping that had been undertaken. We were really targeting who needed to be trained". From the supplier's perspective, at this point in the implementation lifecycle it is essential that core users are singled out and supported with additional training. Respondent three outlined that "[Core users] all have different jobs to do and they require education in different aspects of the system". The Project Team Manager of one of the supplier organisations (Respondent 7) emphasised this point by commenting that "it tends to come down to key project users… we identify champions of a particular area, so they're the ones who get all of the training, all of the key training in that area".

Recommendation 4: staff members should be segregated into core users and standard users. Training for core users must be in line with the role mapping for their specific roles ensuring that they can deliver the benefits in their new job roles.

Undertake training course evaluations

In addressing the issue of evaluating training, respondent one commented that "we used Kirkpatrick, this is level 1 to 4, level 1 is the evaluation, what we call the smiley faces sheet, level 2 takes place within the training, so it's where they do exercises to check understanding". Using Kirkpatrick's definition of effectiveness (Kirkpatrick 1994), the case study organisation were able to schedule refresher courses where necessary, as key issues were highlighted from the post-training questionnaires delivered to all 6,000 end users immediately after their training. From a supplier's perspective, training evaluations also serve an important second purpose of self appraisal. The Founding Director of one of the supplier organisations (Respondent 8) poignantly highlighted this issue by commenting that "a supplier is actually judged on that training course by the evaluation". Undertaking training course evaluations is important not only for delivering training improvements, but also for ensuring the supplier

has a quality standard procedure in place to ensure they deliver highest quality of training provision.

Recommendation 5: Training course evaluations should be undertaken to verify whether refresher courses are necessary. In addition, feedback can indicate if the consultants themselves need more training and ultimately improve their training courses in future for their next clients.

Promote the benefits of the system

During the exploitation phase, once the system is up and running there is a high risk of system atrophy occurring, which is when the organisation does not maximise the opportunities of the system and many features are left unused or ignored. Transition champions are known to be critical in promoting the benefits of the system, therefore the case study organisation recruited transition champions. These individuals were internal staff so that the values of the organisation could be upheld and this was realised to its full potential post implementation, where these individuals conveyed the benefits of full engagement. They were recruited on a voluntary basis, but the recruitment criteria required key qualities: leadership, power, influence and posture. Regarding the transition champions, respondent one commented that "it was absolutely critical for the transition champions to promote the benefits to the end-users". This view was echoed by the supplier consultants, and respondent three commented that "you often don't identify, early doors, who that transition champion is, because it might not come from their job titles… some people just see the big picture". In addition, respondent eight stressed that the transition champions "have to be internal staff".

Recommendation 6: Transition champions should be appointed in order to promote the benefits of the HDIS. Transition champions form a two-way feedback system which facilitates the promotion of the right messages at the right time to the end users. The characteristics of transition champions should include leadership, power, influence and posture as these individuals are considered change agents post-implementation.

Ensure knowledge transfer from the vendor

To avoid many features being left unused or ignored, the case study organisation selected internal trainers who were trained by the supplier. Respondent one made the following comment: "Our Council staff worked alongside IBM on the ERP development, this is where the transfer happened, and this was passed to the trainers. That's where the knowledge transfer happened". Ensuring knowledge transfer is a very important issue facing the supplier,

respondent three commented, the client has "to take ownership of the system, lock, stock and barrel and train the trainer is essential to that". Ensuring the client can initiate their own future training requirements is a big part of the knowledge transfer requirement of HDIS. Regarding this issue, respondent eight commented that they will "try to use the organisation's staff as the trainers, rather than bring professional trainers who are going to do this, because that helps the buy-in". The client and supplier should equally be committed to ensuring knowledge transfer. Although the necessity for organisations integrating HDIS to achieve this was summed by the views of respondent two, who commented that "The difference is we [the supplier] get to go home, they [the client] get left with the system".

Recommendation 7: Knowledge transfer from the vendor should be ensured. This can be achieved initially through a train-the-trainer approach, whereby the supplier trains selected staff from the client organisation. Transfer of knowledge from the supplier should continue post go-live. This can happen for two reasons. Firstly, it is in the interest of the supplier to arrange annual site visits to ensure everything is running smoothly and the system features are being used correctly. At this point a training needs analysis can be carried out to determine if any follow-up training is required. Secondly, the software providers may need to provide system patch updates to keep their software solutions fresh and relevant in-line with the fast moving software industry, and as part of this service offer system upgrade training.

Treat as knowledge workers

Before end-user training began, the case study organisation formulated a corporate training strategy to address post-go-live training requirements, to ensure the end users were fully supported and treated as knowledge workers. From the supplier's perspective it is critical to treat end-users in this way to ensure future benefits are delivered from the new ERPII system. This view was highlighted by respondent two who highlighted that creating knowledge workers is critical to avoid "system atrophies, that's why they atrophy, because you don't do this".

Recommendation 8: To deliver long-term benefits, organisations must ensure staff members are adequately trained post-implementation, creating knowledge workers. Two main options are available for delivering post-implementation training for knowledge workers. Firstly the client organisation can set up a centralised training department to which all IS-related training is undertaken and active staff records are kept for review and appraisal purposes. The organisation must offer standard training courses throughout the year so that staff members can attend in order to improve their knowledge in particular areas. Here, online training

materials can be prepared for general access and training. A second option is for functional departments to maintain their own formal training procedures for individual staff members. The advantage of this option is that departments owning their own area of training will ensure subject matter experts are involved in training design and delivery. In addition, there would be clear ownership of maintaining training materials and functional business process procedures.

Internally disseminate knowledge

The case study organisation created a network of 52 super users for continually supporting the end users and delivering training to new members of staff. Respondent one commented that "The super users played a really critical role". These super users were kept in place post implementation to ensure system features delivered the benefits outlined and to recommend system improvements for future upgrades and customisations. In terms of identifying the symptoms of system atrophy, respondent two commented that **"**you find that Fred learnt it and he left and he told Bert, well he told Bert a percentage of what he knew and Bert left and he told Alf and Alf only knows a percentage of what Bert knew, then he told Betty and so on… so super users are important and keeping super users current is also a difficult thing to do. We always tell customers to keep super users active". It is clear to see why at this point of the implementation the supplier condones the use of super users to internally disseminate knowledge. As highlighted by respondent eight who commented that **"**When a system goes live you need the support of the people who are running that system and the only way you can provide that support, which we call floor walking, … and those are super users".

Recommendation 9: Organisations implementing HDIS should set up an internal support network of super users as existing staff may have tendencies to re-introduce old working practices from old legacy systems and new staff members may not be trained by the previous operatives. These individuals should see this as a long-term job.

Discussion

Since the dawn of complex systems, such as ERP, which offer unique capabilities to end users, there has been an imperative to improve end-user training (Olfman and Mandviwalla 1994). Training staff to a level at which they feel comfortable in utilising the system and indoctrinating them into new ways of the ERP system have been shown to be CSFs for benefits realisation (Gardiner, Hanna et al. 2002). This research shows that organisations looking to achieve benefits realisation from HDIS should invest in end-user training and post-implementation training. By investing in training during the planning, delivery, review and

exploitation stages of the implementation, the problems of technical isomorphism and system atrophy can be circumnavigated.

End-user training for HDIS

In planning end-user training, it is necessary to prepare a holistic training strategy incorporating both client and supplier views and ensuring resources are allocated to all training aspects. It should en-capture all essential training requirements from the preparation and delivery of end-user training and also of post-training requirements (Compeau, Olfman et al. 1995). An element of customer management should be incorporated into the training since HDIS rely upon end users being able to maximise business benefits through the use of these systems. End-user training has been shown to have a direct influence on system usefulness (Igbaria, Guimaraes et al. 1995). It has been recommended that end users participate in the training process (Verville and Bernadas 2005).

In delivering the necessary end-user training, well planned training is necessary which delivers the right information to the right trainee at the right time. A blended learning environment is key if the training is to be delivered within a two-week window before go live. Literature shows that ensuring all users in an ERP implementation receive training is critical (Somers and Nelson 2001), as is undertaking an extensive amount of employee education and training (Clegg, Axtell et al. 1997; Umble, Haft et al. 2003; Ho, Wu et al. 2004). Learning style has long been understood to be a contributing factor of end-user training and the same training method may not be suitable for everyone (Bostrom, Olfman et al. 1990). Technologically enabled training is beginning to play a key role in training end users (Alavi and Leidner 2001). It helps overcome the tight training deadlines and eases the pressures of the training programme. Gupta and Bostrom (2006) also advocate e-learning as it has been found that participants of this approach have overall greater knowledge acquisition than those of traditional learning methods.

In reviewing end-user training, undertaking skills based training is necessary to ensure that core users can deliver the benefits in their new job roles. Separating core users from standard users can allow for focused training to be delivered to specific groups of people. One glove does not fit all in IS training and preparing training materials for the specific requirements of functional groups in performing their roles improves training receptivity (Chow, Woodford et al. 2008). In all instances, increasing the motivation of trainees is critical and research has shown that several simple steps can help; ensuring an appropriate overall training design, preparing job related training and by making training course attendance non-compulsory (Aziz

and Ahmad 2011). Overcoming information overload by end users is essential and this can be done by: revolving training needs around wider positive organisational actions, improving management and leadership training by introducing coaching and mentoring, ensuring the training is in the interests of the end users and encouraging early reporting of issues that arise (Mill 2010).

Training course evaluations should be undertaken to measure the quality of the training delivered and to verify whether refresher courses are necessary. This finding corroborates that of Compeau, Olfman et al. (1995)who acknowledged evaluating end-user training as a CSF for IS. One important way to evaluate the progress of the training has been found to be undertaking performance evaluations (Ho, Wu et al. 2004). In addition, using measurable reference points within the training is critical to understand the effectiveness of the training delivered (Devaraj and Babu 2004). Whilst it has been shown that training course evaluations assess the effectiveness of the training delivered, we found that training course evaluations serve another purpose, namely that suppliers use feedback from a training delivery method evaluation in current implementations to improve subsequent implementations.

Post-implementation training for HDIS

To exploit the benefits of the HDIS, post-implementation training is critical. During the implementation it is essential to train the end user about the concept of ERP for the full benefits of the system to be realised (Yu 2005). Transition champions should be appointed in order to promote the benefits of the HDIS. These are people within the organisation who become special advocates, taking the appropriate actions to increase the likelihood of implementation success. Transition champions are extremely important and it has been suggested that "a forceful internal IT champion is well positioned to encourage a successful IT adoption and implementation without having to rely on external management support" (Prescott and Conger 1995 p36). A network of transition champions forms an essential part of identifying and overcoming any resistances. Having a project champion has been widely cited as being a CSF in ERP implementations (Willcocks and Sykes 2000; Nah, Lau et al. 2001; Somers and Nelson 2001; Finney and Corbett 2007; King and Burgess 2008), and empirical research by Akkermans and Van Helden (2002) shows that a critical role they play is in performing effective internal marketing.

The transfer of knowledge from the vendor is necessary and is ensured initially through a train-the-trainer approach. Our findings show that appointed trainers must be from the client organisation as they convey the vision and customer management concepts of the system.

These individuals are trained by the supplier organisation. However, this finding is in contrast to that of Woo (2007) who suggest that outsourced training is a more appropriate means for delivering training in a vast and complex area such as ERP implementations as qualified professional trainers are more capable of designing and delivering courses for the employees. The technical skills of the trainer influence training performance (Devaraj and Babu 2004). The transfer of training from the supplier to the client organisation is critical and engaging employees in effective learning and developing self-efficacy is the central issue (Bhatti and Kaur 2010). Continual knowledge transfer from the supplier can ensure that system atrophy does not occur. The supplier should keep in regular contact with its customer, offering refresher training courses and providing system updates in a timely manor. In current literature there is no doubt that achieving knowledge transfer is critical (Brown and Vessey 2003; Wang, Lin et al. 2007), and this relates to the critical finding of Akkermans and Van Helden (2006) who observed that achieving an exemplary level of vendor support revolves around upgrading training support.

Rodgers and Negash (2007) highlight that knowledge transfer is increased by developing knowledge workers (high-knowledge individuals or experienced users). This can only be achieved if there is a long-term commitment by both the client and the supplier. The client organisation must treat the end users as knowledge workers and have in place a formal process of continual learning for HDIS. Resources need to be set aside to support either a central or functional IS training unit. Suppliers usually offer free system patch upgrades and refresher courses which client organisations should learn how to take advantage of. Shah, Eardley et al. (2007) suggest that the main issue for the knowledge workers is to articulate their knowledge requirements, since from this the planning team can prioritise and take appropriate actions. IS undoubtedly add additional pressures to end users operating these systems and research suggests that work related stress for IS facilitators has reached epidemic proportions (Love, Irani et al. 2007).

Once the system is up and running, processes must be in place to ensure that information on how to use the system is not only widely available but that trained staff members are on hand to bring new employees quickly up to speed. The appointment of super users is a task which requires significant attention, as super users are an effective solution to disseminating knowledge to end users. The results of this research support literature as the use of super users has been found to be a critical factor in ERP implementations (Muscatello, Small et al. 2003). Davis, Kettinger et al. (2009) also identify that introducing 'IT savvy' users or 'super users' increases the overall satisfaction level of the implementation.

Conclusion

Technical isomorphism and system atrophy are two important problems that can arise from HDIS. Organisations have found it difficult to establish the most effective processes for achieving the desired benefits in ERPII implementations (Al-Mashari and Al-Mudimigh 2003; Ward, Hemmingway et al. 2005), and ERPII implementations have so far failed to overcome technical isomorphism or system atrophy (Sharif and Irani 2005). Our findings suggest that both issues can be avoided through the investment in both end-user training and post-implementation training (Figure 2). Further research is required for greater understanding of the role of training in tackling technical isomorphism and system atrophy if the full benefits of HDIS are to be realised.

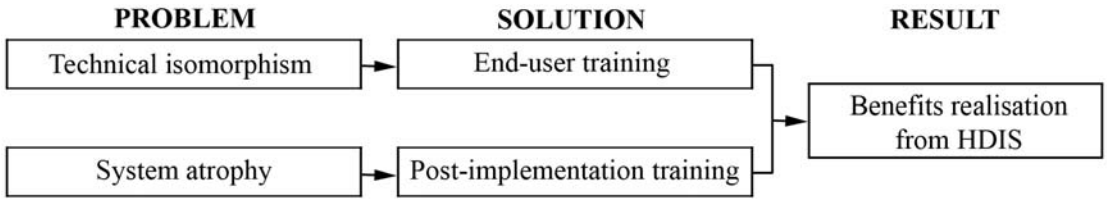

Figure 2. Training for HDIS for benefits realisation.

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